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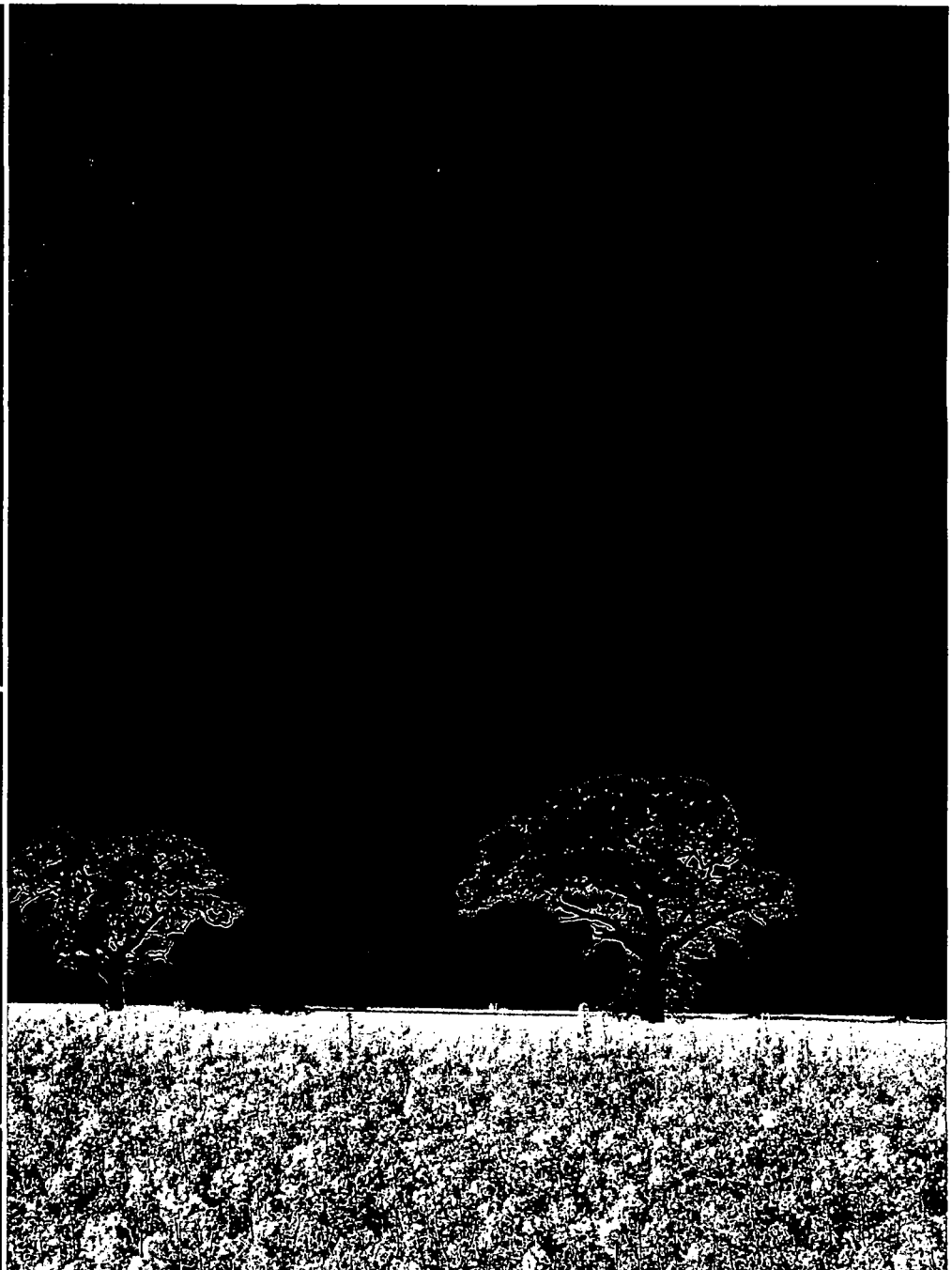
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Draft Project Completion Report – Well Installation and Groundwater Monitoring

Omega Chemical Operable Unit 2,
Whittier, California
EPA Site ID#09BC
Docket No. 9-2004-004

September 28, 2006

**Omega Small Volume Group
(OSVOG)**





Infrastructure, buildings, environment, communications

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Date:
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Draft Project Completion Report - Well Installation and Groundwater Monitoring

Omega Chemical Operable Unit 2,
Whittier, CA

EPA Site ID#09BC
Docket No. 9-2004-004



Infrastructure, buildings, environment, communications

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**Draft Project Completion
Report - Well Installation
and Groundwater
Monitoring**

Omega Chemical Operable
Unit 2, Whittier, CA

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Acronyms and Abbreviations	vii
Executive Summary	1
1. Introduction	1
1.1 Objectives	2
1.2 Report Organization	2
2. Background	3
2.1 Site History	3
2.2 Site Setting	3
2.3 Hydrogeology	4
2.3.1 Regional Hydrogeology	4
2.3.2 Site Hydrogeology	7
3. Study Area Investigation	7
3.1 Health & Safety Plan	7
3.2 Weekly Status Reports	7
3.3 Permits	8
3.4 Borehole Clearance	8
3.5 Well Installation	9
3.5.1 Well Location	9
3.5.2 Cone Penetrometer Testing and Sampling	10
3.5.3 Advancement of Well Boreholes	11
3.5.4 Depth-Specific Water Sampling	12
3.5.5 Geophysical Logging	13
3.5.6 Well Construction	15

3.6	Well Development	16
3.6.1	Pump and Surge	16
3.6.2	Bail and Surge	16
3.6.3	Air Lifting	17
3.7	XYZ Surveying	17
3.8	Dedicated Pump Installation	17
3.9	Groundwater Sampling	18
3.10	Analytical Program	21
3.11	Waste Disposal	22
4.	Findings	22
4.1	Physical Findings	22
4.2	Chemical Findings – Depth Specific Water Samples	24
4.3	Chemical Findings – Baseline Groundwater Sampling	33
4.3.1	VOCs	33
4.3.2	SVOCs	33
4.3.3	Other Compounds	33
4.3.4	Total Dissolved Metals	33
4.3.5	Anions	33
4.3.6	TKN	34
4.3.7	Total Cyanide	34
4.3.8	Total Organic Carbon (TOC)	34
4.3.9	Total Dissolved Solids (TDS)	34
5.	Data Usability and Data Quality Evaluation	34
5.1	Field Sampling	35
5.1.1	Depth-Discrete Water Sampling	35

5.1.2	Groundwater Monitoring	36
5.2	Analytical Methods	36
5.2.1	Cooler Temperature Upon Arrival	37
5.2.2	Holding Time	37
5.2.3	Surrogate Recovery	37
5.2.4	MS/MSD Evaluation	37
5.3	Representativeness	37
5.3.1	Depth-Discrete Water Sampling	37
5.3.2	Groundwater Monitoring	39
5.4	Completeness	39
5.4.1	Depth-Discrete Water Sampling	40
5.4.2	Groundwater Monitoring	40
5.5	EPA Level III Laboratory Data Review	40
6.	Discussion of Results	43
6.1	Physical Results	43
6.2	Chemical Results	44
6.2.1	COCs	44
6.2.2	VOCs	44
6.2.3	Perchlorate and 1,4-Dioxane	45
6.2.4	Inorganics	46
7.	Conclusions	47
8.	References	48

Tables

- 1 Summary of Well Construction
- 2 Water-Level Measurements June 22, 2006
- 3 Sample Identification and Tracking Log – Depth-Specific Water Samples
- 4 Summary of Chemical Analyses - Depth Specific Water Samples
- 5 Sample Identification and Tracking Log – Baseline Groundwater Sampling
- 6 Baseline Groundwater Sampling – June 2006: VOCs.
- 7 Baseline Groundwater Sampling – June 2006: SVOCs
- 8 Baseline Groundwater Sampling – June 2006: 1,2,3-Trichloropropane, N-nitrosodimethylamine, Hexavalent Chromium, Perchlorate and 1,4-Dioxane
- 9 Baseline Groundwater Sampling – June 2006: Dissolved TAL Metals
- 10 Baseline Groundwater Sampling – June 2006: Anions, TDS, TKN and Total Cyanide

Figures

- 1 Site Location Map
- 2 Well Location Map
- 3 Topographic Map
- 4 Generalized Stratigraphic Column for the Whittier Area

Appendices

- A Weekly Status Reports
- B Permits
- C Well Location Maps
- D Boring Logs and Sample ID Logs, Geophysical Logs, and Well Construction Diagrams
- E Well Development Logs
- F XYZ Well Survey Data
- G Dedicated Pump Placement
- H Well Purge Logs and Sample ID Logs
- I Waste Disposal Documentation
- J Depth Discrete Laboratory Reports
- K Groundwater Sampling Laboratory Reports
- L EPA Level III QC Review of Select Laboratory Reports

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION IX

Report Title: Project Completion Report - Omega Chemical Superfund Site

Site Name: Omega Chemical Superfund Site – Operable Unit 2

Site Location: Whittier

City/State/Zip: Los Angeles County, California

Site EPA ID#: 09BC

Anticipated Sampling Dates: July 2006

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FSP Work Plan Approval Date: January 5, 2005

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ACRONYMS AND ABBREVIATIONS

<i>Acronym</i>	<i>Description</i>
ARCH	Air Rotary Casing Hammer
bgs	below ground surface
CDM	Camp Dresser & McKee
CDWR	California Department of Water Resources
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980 (USC §§ 9601 et seq.) SUPERFUND
COCs	chemicals of concern
CPT	cone penetrometer test
CRQL	Contract Required Quantitation Limits
DCA	dichloroethane
DCE	dichloroethene
DD	drawdown
DHS	Department of Health Services
DO	dissolved oxygen
DQO	Data Quality Objective(s)
DTW	depth to water
EPA	Environmental Protection Agency
FSP	Field Sampling Plan
Freon 11	trichlorofluoromethane
Freon 113	trichlorotrifluoroethane
GDI	Gregg Drilling, Inc.
HCl	hydrochloric acid
H ₂ SO ₄	sulfuric acid
HASP	Health & Safety Plan
LCS	laboratory control samples

<i>Acronym</i>	<i>Description</i>
LDC	Laboratory Data Consultants of Carlsbad, California
LNR	long normal resistivity
MCL	Maximum Contaminant Level
MDL	method detection limit
mg/L	milligram per liter (or parts per million)
ml	Milliliter
ml/min	milliliter per minute
MS/MSD	Matrix Spike/Matrix Spike Duplicate
µg/L	microgram per liter (or parts per billion)
msl	mean sea level
NaOH	sodium hydroxide
ND	non detected
NDMA	N-nitrosodimethylamine
NTUs	nephelometric turbidity units
Omega	Former Omega Chemical Corporation Facility
ORP	oxidation reduction potential
OSVOG	Omega Small Volume Group
P	pump inlet
PCE	Tetrachloroethene
Point	single point resistance
PVC	polyvinyl chloride
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
QED	QED Environmental
RI/FS	Remedial Investigation/Feasibility Study

<i>Acronym</i>	<i>Description</i>
RIWP	Remedial Investigation Work Plan
RPD	relative percent difference
RRF	relative response factors
SAP	Sampling and Analysis Plan
SFS #1	Santa Fe Springs Well No. 1
Simulprobe	Maxiprobe Simulprobe® Sampling System
SNR	short normal resistivity
SOW	Statement of Work
SP	spontaneous potential
SVOC	semi-volatile organic compound
TAL	Target Analyte List
TCA	trichloroethane
TCE	trichloroethene
TCP	trichloropropane
TDS	total dissolved solids
TKN	total kjeldahl nitrogen
TMB	trimethylbenzene
TOC	total organic carbon
TOS	top of well screen
UAO	Unilateral Administrative Order
USA	Underground Service Alert
USEPA	United States Environmental Protection Agency
VOA	volatile organic analyte
VOC	volatile organic compound
WDC	Well Development Corporation

Executive Summary

Background

This Project Completion Report has been prepared on behalf of the former Omega Small Volume Group (OSVOG) in response to the United States Environmental Protection Agency's (EPA) First Amended Unilateral Administrative Order (First Amended UAO) for Response Action (EPA Region IX, CERCLA Docket No. 9-2004-0004).

The Statement of Work (SOW) attached to the First Amended UAO included the installation and sampling nine single-cased groundwater monitoring wells (Proposed Monitoring Well MW-12, MW-13, MW-14, MW-15, MW-16, MW-18, MW-19, MW-21 and MW-22) and two triple-nested groundwater monitoring wells (MW-17 and MW-20) downgradient of the former Omega facility; the installation of one extraction well; the performance of one round of groundwater monitoring; and the preparation of a Project Completion Report.

A Remedial Investigation Work Plan (RIWP, ARCADIS 2004a), a Quality Assurance Project Plan (QAPP, ARCADIS 2004b), a Health and Safety Plan (HASP) and a Field Sampling Plan (FSP, ARCADIS, 2005) were prepared in response to the UAO. The RIWP and FSP are in general accordance with EPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (EPA, 1988)*.

EPA issued comments to the FSP on January 5, 2005. In their comments, EPA directed OSVOG to move wells MW-16 and MW-18, and to change them from single-cased wells to triple-nested wells. In addition, EPA directed that an additional triple-nested well (MW-23) be installed upgradient of the former McKesson and Angeles Chemical Corporation sites.

The FSP was conditionally approved by EPA on January 27, 2005. In the EPA conditional approval letter, EPA directed OSVOG to install a dual-nested well at the location of MW-13, instead of the originally requested single-cased well.

The final scope of work directed by EPA included the installation of 23 groundwater monitoring wells in 12 locations, the installation of one groundwater extraction well, the development of the wells, installation of dedicated bladder pumps in the groundwater monitoring wells, and the sampling of the groundwater monitoring wells. This report

documents the procedures followed and results of the implementation the FSP and the modified scope of work.

Implementation of FSP

Between May 2005 and April 2006, ARCADIS installed a total of 24 wells at 13 locations (23 groundwater monitoring wells and one extraction well). Single-cased wells were installed at locations MW-12, MW-14, MW-15, MW-19, MW-21, and MW-22. A dual-nested well was installed at MW-13. Triple-nested wells were installed at MW-16, MW-17, MW-18, MW-20 and MW-23. A 4-inch diameter extraction well was installed at EW-1. Wells were installed in accordance with the approved FSP. Well locations are shown on Figure 2.

Depth-specific water samples were collected during drilling procedures, using a Simulprobe[®] sampler. This sampling was conducted to evaluate the vertical and horizontal extent of volatile organic compounds (VOCs) in groundwater and to obtain a profile of VOCs within the plume. These samples were analyzed for VOCs using EPA Method 8260B. Table 4 summarizes depth-specific water sample VOC results.

Upon completion of drilling and well installation activities, wells were developed by pumping, swabbing, and/or air-lifting. Top of casing were surveyed by CalVada Surveying, Inc. of Corona, California on August 5, 2005, and June 14 and 24, 2006. The survey data are summarized in Table 1 and included as Appendix F. Depth to water and total depths of the wells were gauged in June 2006, and are summarized in Table 2. These data were used to finalize design of dedicated bladder pumps by QED Environmental Systems (QED), and to construct groundwater contour lines.

The dedicated bladder pumps, manufactured by QED, of Ann Arbor, Michigan were installed in all wells except MW-13A, MW-17A, MW-19 and EW-1. Well MW-13A is a dry well. MW-17A and MW-19 producer little water. It was decided, in consultation with EPA, that dedicated pumps were not necessary at this time for these wells.

Groundwater monitoring activities were conducted between July 6 and July 13, 2006. Water samples were submitted to EMAX Laboratories, Inc. of Torrance, California for analysis. A baseline analysis was performed on the water samples collected. This baseline consisted of the testing groundwater from the monitoring wells for VOCs by EPA Method 8260B, semi-volatile organic compounds (SVOCs) by EPA Method 8270C, and chemicals including perchlorate, 1,2,3-trichloropropane (1,2,3-TCP), 1,4-dioxane, and N-Nitrosodimethylamine (NDMA) using EPA Methods 314, 8260SIM,

8270C and 1625, respectively. In addition, the groundwater was analyzed for metals including hexavalent chromium using EPA Method 218.6; and dissolved metals (Target Analyte List [TAL]), including boron and silicon, using EPA Methods 6010/7000, 200.8, and 245.1. Additional parameters included cyanide using EPA Method 335.2, anions (bromide, chloride, fluoride, sulfates, nitrate-N, Nitrite-N, and orthophosphates) using EPA Method 300.0, total dissolved solids (TDS) using EPA Method 160.1, total kjeldahl nitrogen (TKN) using EPA Method 351.3 and total organic carbon (TOC) using EPA Method 415.1.

Findings

Stratigraphic units believed to have been encountered during drilling activities included the Bellflower aquiclude, the Gaspur, Gage, Artesian, Hollydale, Jefferson, and Lynwood aquifers. This information was derived from a comparison of materials encountered during drilling activities, and those published in Department of Water Resources Bulletin 104 (DWR 1961). Further details regarding materials encountered during drilling are detailed in the project well logs contained herein.

Chemical results of the July 2006 groundwater monitoring event indicate the following:

- Groundwater sampling results from all wells that were analyzed show some evidence of the presence of VOCs. Two of the primary VOCs of concern are tetrachloroethene (PCE) and trichloroethene (TCE).
 - Concentrations of PCE above the California Maximum Contaminant Level (MCL) of 5 micrograms per liter ($\mu\text{g/L}$) were identified in MW-12, MW-14, MW-15, MW-17A, MW-17B, MW-18A, MW-20A, MW-20B, MW-23B, and MW-23C.
 - Concentrations of TCE above the MCL of 5 $\mu\text{g/L}$ were identified in MW-12, MW-14, MW-15, MW-16B, MW-17A, MW-17B, MW-17C, MW-20A, MW-20B, MW-23B, and MW-23C.
 - TCE and PCE were not identified at levels above their respective MCLs in MW-13B, MW-16A, MW-16C, MW-18B, MW-18C, MW-19, MW-20C, MW-21, MW-22 and MW-23D.
 - Well MW-13A did not contain adequate water for sampling. Therefore, no VOC results are available.

- Sample results from wells MW-18, MW-19, MW-21, and MW-22 further define the lateral extent of the VOC plume.
- Sample results from wells MW-13B, MW-16C, MW-18C, MW-20C, MW-21 and MW-23D have provided additional data defining the vertical extent of VOC impacts.
- The downgradient lateral extent of the VOC plume attributed to the Omega site as depicted by EPA's subcontractor (Weston, 2003) appears to be commingled with VOC impacts from other downgradient sources (CH2M Hill, 10/5/2005).
- Perchlorate was identified in most of the wells that were sampled (not found in MW-20C) at concentrations ranging from 1.11 to 8.19 µg/L. The State of California has a proposed MCL of 6 µg/L for perchlorate. The distribution of this compound indicates that there are likely sources other than the Omega facility.
- The compound 1,4-dioxane was identified in approximately half of the wells that were sampled at concentrations ranging from 0.96 to 65 µg/L. California Department of Health Services (DHS) has issued a 1,4-dioxane advisory action level of 3 µg/L. This concentration was exceeded in wells MW-14, MW-15, MW-17A, MW-20A and MW-20B. The distribution of this compound indicates that there are likely sources other than the Omega facility.
- The distribution of contaminants identified during this investigation is not consistent with a single source at the former Omega Chemical site. Overall, sample results indicate a commingled, regional groundwater plume originating from multiple sources.

In summary, OSVOG has completed implementation of the scope of work associated with the First Amended UAO. OSVOG prepared a RIPW, HASP, FSP and QAPP. Consistent with the EPA approved FSP, 23 groundwater monitoring wells and one groundwater extraction well were installed and developed. Monitoring wells exhibiting adequate flow were equipped with dedicated sampling pumps, and groundwater sampling was conducted. This report summarizes these activities and provides the results of the groundwater monitoring.

1. Introduction

This Project Completion Report has been prepared on behalf of the Omega Small Volume Group (OSVOG) in response to the United States Environmental Protection Agency's (EPA) First Amended Unilateral Administrative Order (First Amended UAO) for Response Action (EPA Region IX, Comprehensive Environmental Response, Compensation and Liability Act [CERCLA] Docket No. 9-2004-0004).

In January 2004, the EPA issued a UAO (UAO 9-2004-0004; the 2004 UAO or UAO) to certain potentially responsible parties that had not signed the Partial Consent Decree to perform Remedial Investigation/Feasibility Study (RI/FS) work. The Statement of Work (SOW) attached to the 2004 UAO included the preparation of a Remedial Investigation Work Plan (RIWP), a Sampling Analysis Plan (SAP), a Site Health and Safety Plan (HASP), and a Community Relations Plan. Further, the SOW directed the installation and sampling of eight triple-nested groundwater monitoring wells to assist in defining the vertical and lateral extent of contamination in groundwater downgradient of the former Omega facility. The SOW also included the installation of a groundwater extraction well, the performance of an aquifer pumping test and slug testing to evaluate aquifer properties; and the preparation of a Project Completion Report.

The 2004 UAO was amended in June 2004 (herein referred to as the First Amended UAO). Fifteen of the parties named in the First Amended UAO, known as the OSVOG, retained ARCADIS to perform consultant (and field) services to comply with the First Amended UAO. The SOW attached to the First Amended UAO included the installation and sampling nine individual groundwater monitoring wells (Monitoring Well MW-12, MW-13, MW-14, MW-15, MW-16, MW-18, MW-19, MW-21 and MW-22) and two triple-nested groundwater monitoring wells (MW-17 and MW-20) downgradient of the former Omega facility; the installation of one extraction well; the performance of one round of groundwater monitoring, and the preparation of a Project Completion Report.

A RIWP (ARCADIS 2004a), a Quality Assurance Project Plan (QAPP, ARCADIS 2004b), a HASP and a Field Sampling Plan (FSP, ARCADIS, 2005) were prepared in response to the UAO. The RIWP and FSP were prepared in general accordance with EPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA* (EPA, 1988).

EPA issued comments to the FSP on January 5, 2005. In their comments, EPA directed OSVOG to move wells MW-16 and MW-18, and to change them from single-cased wells to triple-nested wells. In addition, EPA directed that a new triple-nested well (MW-23) be installed upgradient of the former McKesson and Angeles Chemical Corporation sites.

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The final scope of work directed by EPA included the installation of 23 groundwater monitoring wells in 12 locations, the installation of one groundwater extraction well, the development of the wells, installation of dedicated bladder pumps in the groundwater monitoring wells, and the sampling of the groundwater monitoring wells. This report documents the procedures followed and results of the implementation the FSP and the modified scope of work.

1.1 Objectives

The objectives of the field investigation as identified in the RIWP were to install the monitoring wells and an extraction well to further characterize the nature and extent of contamination and to characterize the site hydrogeology, and to perform one round of groundwater monitoring from the newly installed monitoring wells in accordance with the First Amended UAO.

1.2 Report Organization

The remainder of the report is organized as follows:

- Section 2 - Presents site background information;
- Section 3 – Discusses the study area investigation and summarizes associated field activities;
- Section 4 – Presents findings;
- Section 5 – Discusses data usability and Data Quality Objectives (DQOs), provides a discussion of the quality assurance/quality control (QA/QC) program, and presents an evaluation of the data quality;
- Section 6 - Discusses physical and chemical information collected during the field activities; and
- Section 7 - Contains the conclusions made after a review of the physical and chemical results.

2. Background

2.1 Site History

The former Omega Chemical Corporation (Omega) Facility was a refrigerant/solvent recycling operation located at 12504 and 12512 East Whittier Boulevard in Whittier, California (Figures 1, 2 and 3). The facility operated as a Resource Conservation and Recovery Act solvent and refrigerant recycling and treatment facility from approximately 1976 to 1991, handling primarily chlorinated hydrocarbons and chlorofluorocarbons. Drums and bulk loads of waste solvents and chemicals from various industrial activities were sent to the facility for processing. Wastes generated included distillation column (still) bottoms, aqueous fractions, and waste solvents. Additional site history and past investigation and remediation activities are discussed in the *Final On-Site Soils Remedial Investigation/Feasibility (RI/FS) Study Work Plan* (Camp Dresser & McKee [CDM], 2003a) and the former *Omega Chemical Superfund Site; Whittier, California, Phase 2 Groundwater Characterization Study Report* (Weston Solutions, Inc. [Weston], 2003).

Site chemicals of concern (COCs) in soil and groundwater include the volatile organic compounds (VOCs) tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethene (1,1-DCE), cis-1,2-dichloroethene (cis-1,2-DCE), chloroform, trichlorofluoromethane (Freon 11) and trichlorotrifluoroethane (Freon 113). In addition to the VOCs, elevated total chromium has also been reported in groundwater. Elevated groundwater COC concentrations have been documented west and southwest of the former Omega facility. At least six other potential COC sources have been identified downgradient of the site (Weston, 2003).

EPA has divided the former Omega Chemical Superfund Site into two Operable Units: OU-1 and OU-2. OU-1 includes the former Omega Chemical Facility, and OU-2 includes the VOC plume that is believed to have originated from the former disposal facility. The work performed as part of this effort is associated with the OU-2.

2.2 Site Setting

The former facility is located along the base of the La Habra piedmont slope descending from the southwestern flank of the Puente Hills, at an elevation of approximately 220 feet above mean sea level (msl) (Weston, 2003). The piedmont slope descends toward the southwest (and the axis of the La Habra Syncline) at a slope of approximately 2.5 percent to an area approximately 2,800 feet southwest of the former Omega Chemical Facility. In this area, the ground surface flattens into a broad basin or plain, at an elevation of approximately 150 to 155 feet msl. In the

southwestern part of the study area, the ground surface ascends a low rise at the northwest end of the Santa Fe Springs plain (towards the axis of the Santa Fe Springs anticline), at an approximate elevation of 160 feet msl (Weston, 2003). The site and surrounding areas are developed. The Sorenson Avenue drain, shown on Figure 1, is a small concrete-lined drainage channel that flows southeast from the intersection of Dice Road and Slauson Avenue and becomes La Cañada Verde Creek to the south of the OU-2 study area (Weston, 2003).

2.3 Hydrogeology

This section summarizes the regional and site hydrogeology.

2.3.1 Regional Hydrogeology

OU-2 straddles the contact between the Whittier Area and the Montebello Forebay in the Central Basin of the Coastal Plain of Los Angeles County. The Coastal Plain is bounded on the west and south by the Pacific Ocean and by mountains on the north, east, and southeast. The Coastal Plain is underlain by an extensive groundwater basin in Los Angeles and Orange Counties.

Water-bearing sediments identified in the Whittier area extend to an approximate depth of at least 1,000 feet below ground surface (bgs). The identified geologic units consist of recent alluvium, the upper Pleistocene Lakewood Formation and the lower Pleistocene San Pedro Formation. Figure 4 shows a generalized stratigraphic column of water-bearing sediments in the Whittier area. The Pliocene and Miocene marine sediments below the San Pedro Formation generally contain saline water in the Whittier area, although locally can contain fresh water. These units are considered non-water-bearing where exposed in the Puente Hills and include the Pliocene Pico and Repetto Formations and the Upper Miocene Puente Formation.

The major geologic structures in the area include a homocline that underlies the La Habra piedmont slope, the northwest-trending La Habra syncline underlying the alluvial basin, and the west-northwest trending Santa Fe Springs anticline situated below the slightly uplifted Santa Fe Springs plain. The La Habra syncline affects the San Pedro Formation and, to a lesser extent, the Lakewood Formation, and has a surface expression at the axis of the basin. The Santa Fe Springs anticline folds both the San Pedro and Lakewood Formations; shallow aquifers thin across the crest of the anticline. The west-northwest trending Whittier fault is located northeast of the site in the Puente Hills (California Department of Water Resources [CDWR], 1961).

As reported by CDWR (1961), the uppermost unit in the vicinity of the former Omega site consists of the "Bellflower Aquiclude." The Bellflower Aquiclude comprises all the fine-grained sediments that extend from the ground surface down to the first aquifer. The Bellflower Aquiclude consists primarily of clay and sandy clay to silt, and ranges from 20 to more than 40 feet in thickness in this area. CDWR (1961) considers the Bellflower Aquiclude to be present in both the recent alluvium and the upper part of the Lakewood Formation. In the Whittier area, the Bellflower Aquiclude is considered to be entirely within the Lakewood Formation. Water-bearing zones locally occurring within the Bellflower Aquiclude are referred to collectively and informally as the Semi-perched Aquifer.

The Lakewood Formation consists of non-marine deposits of Late Pleistocene age and attains a maximum thickness of 70 feet. The Gage Aquifer is the major water-bearing member and comprises the basal lithologic unit of the Lakewood Formation. It consists of about 30 feet of sand with some interbedded clay. Based on previous investigations at the former Omega site, the Gage Aquifer appears to be absent beneath the site proper. A sand interval found in exploratory borings a short distance southwest of the site is believed to correlate with the Gage Aquifer (England and Hargis, 1996). The Gage Aquifer is interpreted by CDWR (1961) to extend eastward approximately 2.5 miles south of the site. However, exploratory borings suggest the Gage is present west of the former Omega site, but pinches out or disappears toward the east. The Gage Aquifer does not appear to be an important source of drinking water in the Whittier area, based on elevated total dissolved solids (TDS) concentrations observed during sampling, and none of the local water supply wells produce water from this aquifer.

Underlying the Lakewood Formation are primarily marine sand and gravels with interbedded clay, assigned to the San Pedro Formation. The San Pedro Formation reaches a maximum thickness of 850 feet and extends to a depth of about 920 feet. The San Pedro Formation unconformably underlies the Lakewood Formation. The San Pedro Formation has been subdivided into five named aquifers separated by clay members. A fine-grained layer is also typically present at the top of the sequence, although in localized areas, the uppermost San Pedro Formation aquifer may be merged with the overlying aquifer, and one or more of the five aquifers may also be merged (CDWR, 1961). This suggests that the Gage sand unit could directly overlie, and be in hydraulic connection with, San Pedro Formation aquifers in the vicinity of the former Omega site. Subsurface explorations conducted near the site to date, however, have identified clays underlying the suspected Gage-equivalent sand unit.

The five aquifers defined within the San Pedro Formation include, from top to bottom, the Hollydale, Jefferson, Lynwood, Silverado, and Sunnyside. The upper two aquifers are less extensive and appear to be absent in the immediate vicinity of the former Omega site.

The San Pedro aquifers consist of varying amounts of sand and gravel with some interbedded clay. The thickness of the aquifers increases with depth. The shallow Hollydale Aquifer ranges from 10 to 25 feet, whereas the deepest Sunnyside Aquifer ranges from 200 to 300 feet. The base of the Sunnyside Aquifer reaches a maximum depth of about 1,000 feet bgs (CDWR, 1961). The San Pedro Formation aquifers are the primary source of water for the production wells in the area. The Pliocene and Miocene sediments below the San Pedro Formation generally contain saline water in the area, but locally contain freshwater (CDWR, 1961).

Based on a records search by England-Hargis (1996), there are six water supply wells within 1.5 miles of the site. The nearest well, Well No. 02S/11W30-R3, also known as

Redacted, FX9: WELLS

that are tapped by SFS#1 are believed to include the Silverado and Sunnyside Aquifers, which occur within the lower part of the Lower Pleistocene San Pedro Formation. In several years of monitoring SFS#1, low concentrations of chlorinated hydrocarbons (including TCE, chloroform, and PCE) have occasionally been detected. Most recently (in February 2003), only TCE at a concentration of 0.64 microgram per liter ($\mu\text{g/L}$) was reported above the method detection limit (MDL). Hexavalent chromium was reported at a concentration of 2.6 $\mu\text{g/L}$. The depth interval(s) from which the contamination is entering the well has not been established. The production rate of SFS#1 ranges up to approximately 1,250 gallons per minute (England and Hargis, 1996). It is not established what effect well SFS#1 has on local groundwater flow direction and contaminant migration; shallow groundwater in the vicinity of the well appears to flow toward the south, unaffected by pumping from SFS#1 (Weston, 2003).

The Los Nietos water supply well (Well No. 02S/11W30-Q5) is located about 1.5 miles southwest of the site (about 1,500 feet west-northwest of SFS#1). This well is screened from 152 to 370 feet bgs. PCE and TCE were detected at unknown concentrations from 1986 through 1990 (Weston, 2003). The well locations are shown on Figure 2.

The remaining wells (Well Nos. 2S/11W-29E5, 2S/11W-32G3, 2S/11W-33M1, and 2S/11W-32J4) are no longer operating, were used for irrigation, no water-quality data were available, or their exact locations are unknown (Weston, 2003).

2.3.2 Site Hydrogeology

The hydrogeology of the former Omega site has been explored with soil borings and cone penetrometer testing (CPT). The former Omega site is underlain by relatively low permeability silty and clayey soils to a depth of about 120 feet bgs. A sand unit, which may correlate with the Gage Aquifer, has been encountered approximately 600 feet southwest of the site beneath Putnam Street. Groundwater at OU-1 generally occurs at a depth of approximately 70 feet bgs. The depth to groundwater ranges between 40 and 70 feet over OU-2. Consistent with information presented in the (CDWR) Bulletin 104 (CDWR 1961), local groundwater flow appears to be generally towards the southwest. CDM of Irvine, California reported a local direction of groundwater flow toward the southwest with a hydraulic gradient of 0.009 foot per foot. (ft/ft) (CDM, 1999). The hydraulic conductivity of the upper silty unit was estimated from step-drawdown tests conducted in Monitoring Well OW2 and a slug test at Monitoring Well OW1. CDM reported that the hydraulic conductivity in this area ranged from 0.8 to 1.6 feet per day (CDM, 2003b).

A description of hydraulic units believed to have been encountered during drilling activities is provided in Section 4.1.

3. Study Area Investigation

The following sections summarize the field activities and findings associated with the implementation of the RIWP and FSP.

3.1 Health & Safety Plan

In accordance with ARCADIS' Health and Safety protocol, and 29 Code of Federal Regulations 1910, and the California Occupational Safety and Health Administration, ARCADIS prepared a HASP for the project. The HASP was included in ARCADIS' RIWP (2004a).

Each morning of field activities, the on-site ARCADIS field safety officer conducted a tailgate safety meeting. Upon completion of the tailgate safety meeting, all personnel on site, including subcontractors, signed Tailgate Safety Briefing Sign-in Log. Copies of these logs are retained in the project file.

3.2 Weekly Status Reports

Weekly status reports were prepared and submitted to EPA during implementation of field activities. Copies of status reports are attached as Appendix A. These reports

were utilized to keep EPA appraised of project progress as well as issues that required resolution.

In addition, frequent communications occurred between OSVOG's contractor ARCADIS, EPA's contractor, CH2M Hill, and EPA as work progressed or as issues arose in the field. These communications were in person, by phone, and by e-mail.

3.3 Permits

Well installation permits were applied for in accordance with Los Angeles County Department of Health Services (DHS) permit requirements. Copies of these permits are included in Appendix B. In addition, excavation permits and encroachment permits were obtained from the Cities of Santa Fe Springs and Whittier. Copies of these permits are also included in Appendix B.

3.4 Borehole Clearance

In accordance with California Code of Regulations, Sections 4216 to 4216.9, ARCADIS called the Underground Service Alert (USA) at least 48 hours prior to drilling at each well location. USA notifications were updated as necessary until all wells were installed. Upon notification, USA contacted its associated members to identify their underground utilities in the area of excavation.

As further precaution, ARCADIS contracted with an underground utilities locator (Spectrum Geophysics of Los Angeles, California) to locate possible underground utilities within a 10-foot radius of the proposed well locations that might not have been marked by USA members. In addition, physical clearance of underground utilities was performed by air knifing each well location to a depth of approximately 8 feet bgs and to at least 12 inches in diameter (the maximum borehole diameter). Air knifing, an excavation process using high-pressured air to loosen soil, and a vacuum to remove the loosened soil, was performed by Well Development Corporation (WDC). This method allows for the excavation of a limited area while minimizing potential damage to underground utilities. Upon completion of air knifing, the removed soil was placed back in the hole and compacted pending drilling activities.

Where borings were unavoidably located near underground utility lines (e.g., MW-20 and MW-21), a steel casing was manually inserted between the utility lines to 10 feet bgs as a safe conduit for drilling.

3.5 Well Installation

3.5.1 Well Location

Wells MW-12 through MW-23 and EW-1 were installed in accordance with ARCADIS' EPA-approved FSP and in accordance with further correspondence with EPA and their oversight contractor CH2M Hill. Well locations are shown on Figure 2, and Well Location Maps are included in Appendix C. Wells installed at locations different from those proposed in the FSP include:

- Well MW-13. This well was originally proposed to be located on private property, approximately 500 feet southwest of the intersection of Putnam Street and Pacific Street. Due to access agreement issues, the well was moved to Putnam Street, in front of the Fred Rippey facility at 12412 Putnam Street, approximately 270 feet south-southeast of the intersection with Pacific Street (approximately 457 feet east of the original location).
- Well MW-14. This well was originally proposed to be located in the west-bound right lane of Washington Boulevard, approximately 250 feet west of the intersection with Lambert Road, in front of the Presbyterian Intercommunity Hospital. Due to excessive underground utilities in the area, the well location was moved (with the approval of EPA) to the east-bound right lane of Washington Boulevard in front of Unit F of 12300 Washington Boulevard. Due to drilling restrictions and work-time restrictions imposed by the City, as well as traffic safety issues, the well location was again moved with EPA concurrence to the parking lot of the Presbyterian Intercommunity Hospital located at the northwest corner of the intersection of Washington Boulevard and Lambert Road (approximately 240 feet east-northeast of the original location).
- Well MW-15. This well was originally located on private property, in the driveway between two industrial buildings, approximately midway between Byron Road and Chetle Avenue, south of Riviera Road. Due to access agreement issues, this well was moved approximately 735 feet southwest (downgradient), to the area in front of 8550A Chetle Avenue.
- Well MW-16. This well was originally located on Altamar Place, approximately 310 feet southeast of Dice Road. Due to excessive underground utilities in the area, the well was moved to a location approximately 480 feet north-northwest, in front of 9028 Dice Road.
- Well MW-18. At the request of EPA (January 5, 2005), Well MW-18 was moved from its original location in the northeast-bound right lane of Santa Fe Springs

Road, just northeast of the intersection with Los Nietos Road, to a location in the northeast-bound right lane of Santa Fe Springs Road, just southwest of the intersection with Ann Street. Due to high volume of truck traffic in this area and the presence of a significant number of underground utility lines, the well was moved to Ann Street, approximately 130 feet southeast of the intersection with Santa Fe Springs Road (approximately 180 feet east of the revised location).

- Well MW-20. This well was originally located approximately midway along the west property line of the oil field on east side of Geary Avenue. At the request of the property owner, and with the approval of EPA, the well was moved to approximately 10 feet south of the north property line of the oil field property (approximately 260 feet north of the original location).
- Well MW-21. This well was originally located on Hamden Street, approximately 250 feet east of Pioneer Boulevard. The City of Santa Fe Springs does not permit the installation of wells in the streets. Due to limited space on the sidewalk at the original location, and the presence of underground utilities, the well was moved to the sidewalk on the west side of Pioneer Boulevard, in front of 9929 Pioneer Boulevard (approximately 310 feet west-northwest of the original location).
- Well MW-22. This well was originally located on Arlee Street at the intersection of Fredson Street, a residential area. Given the restrictions of drilling in the street, imposed by the City of Santa Fe Springs and with the approval of EPA, this well was moved to the greenbelt on the east side of Arlee Street at the intersection of Terradell Street, approximately 800 south of the original well location.
- Well EW-1. This well, at the request of CH2M Hill and EPA, was moved approximately 40 feet west, to a location approximately midway between wells MW-08A and MW-8D.

3.5.2 Cone Penetrometer Testing and Sampling

In accordance with the approved FSP, ARCADIS contracted Gregg Drilling, Inc. of Signal Hill, California (GDI) to advance CPT borings at proposed well locations MW-19, MW-20, MW-21 and MW-22. The purpose of the CPT borings was to collect groundwater data at these locations in an attempt to refine the proposed well locations at the leading edge of the plume. The CPT protocol included continuous penetration testing to collect lithologic data and pore pressure dissipation tests to identify water bearing zones and collect hydraulic head data. EPA had specified, in discussions with ARCADIS, that concentrations of TCE and PCE between the MDL and the California Maximum Contaminant Level (MCL) would define the leading edge of the plume.

On August 5, 2005, GDI advanced a CPT boring at MW-19, and encountered refusal at 73 feet bgs. Pore-pressure dissipation tests were performed at 5-foot intervals from 60 feet bgs. Groundwater was not encountered. A second attempt was made at the same location, with similar results. CPT logs suggested the refusal occurred in a formation of cemented sand. GDI advanced a CPT boring at the proposed MW-22 location. Refusal was encountered at approximately 45 feet bgs. Groundwater was not encountered. ARCADIS reported the failed CPT attempts to EPA and CH2M Hill and, after consultation, abandoned further attempts to advance CPT borings.

3.5.3 Advancement of Well Boreholes

Installation of groundwater monitoring wells was performed using Air Rotary Casing Hammer (ARCH), Sonic, and Mud Rotary drilling techniques. The drilling method used for each of the wells is noted on Table 1.

3.5.3.1 ARCH Drilling

The ARCH method consists of a single drive casing advanced by a percussion hammer. Compressed air is circulated down the drill stem and up within the annular space between the drill stem and drive casing (direct air circulation). Drill cuttings are discharged into a cyclone separator. Drilling mud is not required to keep the borehole open. The borehole remains sealed by the drive casing during drilling. Potential effects on the groundwater around the borehole will be minimized by thorough well development. One major advantage of the ARCH method is that the drill rig can be converted to mud-rotary drilling if flowing sands are encountered.

Well MW-23 was initially started using the ARCH drilling method, however, due to heaving sand conditions, the drilling technique was re-evaluated and, with EPA concurrence the drilling was completed utilizing the mud rotary technique to complete this well.

3.5.3.2 Sonic Drilling

The sonic drilling technology employs the use of high-frequency mechanical vibration to advance the drill-string through unconsolidated, and to a limited extent, consolidated materials. The sonic drill rig uses an oscillator, or head, with eccentric weights driven by hydraulic motors, to generate high sinusoidal force in a rotating drill pipe. The frequency of vibration of the core bit can be varied to allow optimum penetration of subsurface materials. Sonic drilling can use water as a drilling fluid, if required.

Drilling is conducted using an inner casing (core barrel) equipped with a cutting shoe, followed by an outer casing. There are three types of cutting shoe: one that pushes the soil toward the borehole wall; one that centralizes the soil into the core barrel; and, one that is midrange. Either the midrange cutting shoe or the one that centralizes the soil is used. When installing a 2-inch well, a 4-inch diameter inner core barrel and a 6-inch diameter outside casing are used. The core barrel advances 10 feet into the subsurface, followed by the outer casing. The core barrel is then removed from the borehole and the soil is sampled and bagged for preservation or for disposal. The core barrel is placed back into the borehole and pushed another 10 feet. An additional 10 feet length of outer casing is added to the outer casing that is in the ground and is advanced to meet the bottom of the core barrel. This process is continued until the total depth is reached. Sonic drilling does not produce cuttings, but may generate investigation derived waste water.

Wells MW-12, MW-14, MW-15, MW-19, MW-21, and MW-22 (single-cased wells) were installed with sonic drilling. Generally, wells installed during the implementation of the FSP did not require the use of water as a drilling fluid.

3.5.3.3 *Mud-Rotary Drilling*

Drilling mud may be used during construction of the deeper monitoring wells or where borehole instability is encountered during drilling of the shallow and intermediate wells. Typically, mud-rotary methods are implemented to minimize borehole collapse and to assist in evacuating drill cuttings from the boreholes. Drilling mud also helps to reduce the possibility of cross contamination between groundwater zones, because it continuously invades the formation along the borehole walls and forms a low-permeability mud cake.

Drilling mud consisted of bentonite and water. The viscosity and density of the drilling mud were tested periodically and maintained within the limits specified by the site hydrogeologist or engineer. Drilling mud was forced down the drill pipe and out through ports in the drill bit utilizing the minimum quantity of mud required to evacuate drill cuttings from the borehole.

Wells MW-13, MW-16, MW-17, MW-18, MW-20, MW-23, and EW-1 were installed using mud rotary.

3.5.4 *Depth-Specific Water Sampling*

In accordance with the UAO and approved FSP, groundwater and/or soil samples were collected at discrete depths, during installation of the boreholes for the

monitoring wells. The groundwater samples were collected and analyzed to help evaluate target well intervals within the contaminated zone. During drilling operations, WDC collected discrete soil and water samples using a Maxiprobe Simulprobe® Sampling System (Simulprobe). The purpose of the Simulprobe is to collect soil samples concurrently with groundwater. Simulprobe sampling was performed at 10-foot intervals in coarse materials, from first encountered groundwater.

The Simulprobe consists of three primary sections: the cutting shoe and screen-coupling assembly; the soil core barrel; and, the water storage canister. Together, the Simulprobe is approximately 4 feet long, and is 3.38 inches in outside diameter.

Prior to assembly, all parts of the Simulprobe were washed with a non-phosphate detergent (Alconox) and triple rinsed. Prior to sampling, the Simulprobe was assembled and lowered to the bottom of the borehole. The Simulprobe was then pounded approximately two to three feet into the soil, allowing for the collection of a soil sample and positioning the device for collection of a groundwater sample.

The collected water was then drained into appropriate sample containers (40-milliliter [ml] volatile organic analysis [VOA] vials preserved with hydrochloric acid [HCl]) and the soil sample was inspected by the on-site geologist.

For QC purposes, one equipment blank was collected from the Simulprobe water canister on each day depth-discrete water sampling was performed.

3.5.5 Geophysical Logging

Geophysical well logging methods measure physical and chemical properties of formations and fluids in or around the vicinity of the well. The data provided consists of a series of curves plotted on a graph showing changes in the properties with depth. These graphs provide an evaluation of stratigraphy, borehole diameter, and, in some cases, water-bearing zones that often assists in determining screen placement for well construction.

Geophysical well logging of the well bores drilled using mud rotary (MW-13, MW-16, MW-17, MW-18, MW-20 and MW-23) was performed by Pacific Surveys of Claremont, California (Pacific Surveys). Methods used included electronic logging (E-Log), Laterolog 3 resistivity logging, gamma-ray logging, caliper and dual-induction logging. Copies of the geophysical logs are included in Appendix D.

With the exception of well MW-23, geophysical logging was performed upon reaching the planned total depth of the well, or an extended depth (based on depth-specific water samples), prior to well construction. A dual-induction log was performed in well MW-23D after construction of the well. The dual induction method was used in this well after construction because steel conductor casing had been driven to approximately 140 feet bgs during ARCH drilling, making the other geophysical methods ineffective.

E-Logs incorporated four separate measurements: spontaneous potential (SP), short normal resistivity (SNR 16-inch normal), long normal resistivity (LNR 64-inch normal) and single point resistance (Point).

SP logs record potentials or voltages developed between the borehole fluid and the surrounding rock and fluids. SP logs can be used in the evaluation of lithology and water quality. Collection of SP logs is limited to water- or mud-filled open holes.

SNR and LNR logs record the electrical resistivity of the borehole environment and surrounding rocks and water as measured by variably spaced potential electrodes on the logging probe. Typical spacing for potential electrodes is 16 inches for SNR and 64 inches for LNR. Normal-resistivity logs are affected by bed thickness, borehole diameter, and borehole fluid, and can only be collected in water- or mud-filled open holes.

SP logs record the electrical resistance from points within the borehole. In general, resistance increases with increasing grain size and decreases with increasing borehole diameter, fracture density, and dissolved-solids concentration of the water. SP resistance logs are useful in the determination of lithology, water quality, and location of fracture zones.

Laterolog 3 resistivity logging records the electrical resistivity of the borehole and surrounding formation and water with a focused beam of electrical current. This provides a higher resolution of the contacts between soil layers than that provided by the SP, SNR and LNR logs.

Gamma-ray logs record the amount of natural gamma radiation emitted by the rocks surrounding the borehole. The most significant naturally occurring sources of gamma radiation are potassium-40 and daughter products of the uranium- and thorium-decay series. Clay- and shale-bearing rocks commonly emit relatively high gamma radiation because they include weathering products of potassium feldspar and mica and tend to concentrate uranium and thorium by ion absorption and exchange.

Caliper logs record borehole diameter using three arms. Changes in borehole diameter are related to well construction, such as casing or drilling-bit size, and to fracturing or caving along the borehole wall. Because borehole diameter commonly affects other geophysical-logging method responses, the caliper log is useful in the analysis of other geophysical logs. In addition, caliper data can be used to evaluate washout areas, and to provide total and annular volumes for gravel and cement volume calculation.

At well MW-23, Pacific Surveys employed a dual induction instrument. This instrument records medium and deep focused conductivity measurements. Typically, dual induction tools also include a shallow reading focused tool (e.g., a laterolog), and an SP log. The dual induction instrument provides excellent bed definition in air or mud filled boreholes, and can be used in polyvinyl chloride (PVC) cased wells.

3.5.6 Well Construction

With the exception of well EW-1, wells were constructed of two-inch diameter, Schedule 80 blank and slotted PVC screen. The general structure of the wells consisted of blank pipe, a 10 or 15-foot screened section, followed by a five-foot blank sump equipped with a threaded end cap. Well EW-1 was constructed of four-inch diameter Schedule 80 PVC.

The well screen intervals were selected based on the results of discrete depth groundwater sampling during drilling, on observations of materials in the soil column, and on results of the geophysical logging. Proposed well construction details were prepared in consultation with EPA's field activities oversight consultant CH2M Hill personnel prior to implementation. As a general rule, screens were placed at the depth interval in each zone with the highest contaminant concentration was screened. Well construction details are summarized in Table 1.

Screen filter pack material was determined based on the formation observed in the proposed screen zone: the granular size of the filter pack was estimated to be similar in size to observed materials. The slot size of the casing was evaluated to retain at least 90 percent of the filter pack material. The filter pack was tremmie-piped to the bottom of the hole while measuring its placement with a down-hole measuring tape, and extended approximately two feet above the screened interval. The screened interval of the well was then surged prior to placement of transition sand. Approximately one foot of transition sand was placed on top of the filter pack. For nested wells, a one-to-one mix of bentonite crumble and Number 3 Sand was placed from the top of the transition sand to approximately two feet below the next screened interval. After placement of the filter pack and transition sand for the shallowest-

screened interval of the wells, a two-foot thick layer of medium bentonite chips was emplaced. A 95-percent cement, five-percent Benseal®, slurry was used as an annular seal to ground surface. The top of the well casings were then enclosed in traffic-rated well boxes set in concrete.

Well construction diagrams are shown on boring logs in Appendix D.

3.6 Well Development

The goal of well development is to improve hydraulic communication between the geologic formation and the well. Hydraulic communication may be degraded when clay and silt in the formation (or in fractures), and/or when drilling muds, are smeared on the borehole wall during the drilling process. Well development improves hydraulic communication by eliminating or reducing this smear. Development also improves the filtering action of filter pack that surrounds the well casing. Well development removes fine sediments along the contact between the well screen and the formation, and some distance into the formation.

Well development was performed by WDC using a combination of techniques including surge-and-bail, air lifting, swabbing, and pumping. The wells were developed until temperature, conductivity, and pH parameters stabilized, and until the turbidity of the water decreased below 10 nephelometric turbidity units (NTUs). Purge water was placed in a water trailer, and later transferred to on-site storage bins pending profile and disposal. A discussion on waste disposal is presented in Section 3.11 of this report. Well development logs are included in Appendix E.

3.6.1 Pump and Surge

Upon completion of air lifting procedures, a Grundfos Rediflow pump was lowered down the well to the top of the well screen. The pump was turned on and extracted water was monitored for pH, conductivity, temperature and turbidity approximately once every 5 to 10 minutes. The pump was lowered when the turbidity of the well screen being pumped decreased to below 10 NTUs. This process was repeated until the entire screened section was developed. Similar to the air-lifting method, the pump was periodically turned off to allow the water column to fall, surging the well.

3.6.2 Bail and Surge

A bail and surge methodology was used in wells that were too turbid to pump and did not contain sufficient water column to air lift (MW-17A, MW-19). A surge block was repeatedly lowered and raised across the well screen to create a surging action,

loosening the finer particulates and pulling them into the well. A bailer was then lowered down the well to remove the accumulated sediment in the well.

3.6.3 Air Lifting

In some cases air lifting was used to help develop the wells. With this method, compressed air is injected into the well and the air lifts water and sediment to the surface. Air lifting was performed by placing a 1-inch diameter galvanized steel pipe, equipped with a brush, to the bottom of the well. The top of the pipe extended above the top of the well casing. A T-pipe extension with a two-inch-to-one-inch reduction was installed onto the top of the well casing, sealing the top of the well and the air-injection line. A discharge line was attached to the T. Air was then injected via the 1-inch diameter pipe. The turbulence resulting from the injection, combined with the brushing, worked to dislodge particulates from the sand pack, adjacent formation, and the inside of the well casing.

The injection of air into the water reduces the density of the water column, causing it to rise to the ground surface. The water rises in the well (around the injection pipe), up the extension pipe, out the discharge line, and into either a bin or into the water trailer tank. When the turbidity of the water is reduced to less than 10 NTUs, the air-injection pipe is lowered 5 feet down the well screen and the process is repeated. Periodically during the air lifting of a section of well screen, the air compressor is shut off, and the water in the well falls, thereby surging the well screen. This process is repeated (air lifting and surging) until the entire screened interval and underlying sump have been cleaned out.

3.7 XYZ Surveying

The well locations (latitude and longitude) and top-of-casing elevations were surveyed by Calvada Land Surveyors. The latitude/longitudinal coordinates for the wells were based on the North American Datum 1983 datum, using the National Geodetic Survey Point DV0238. In addition, the top of rim, natural ground surface (or finished surface) elevations were also recorded. Surveys of the wells were performed on August 5, 2005, June 14, 2006, and June 24, 2006. Survey data is included in Appendix F.

3.8 Dedicated Pump Installation

Dedicated bladder pumps, manufactured by QED Environmental Systems (QED), were installed in all wells with the exception of wells MW-13A, MW-17A and MW-19. Well MW-13A is dry. Wells MW-17A and MW-19 have limited water in the screened portion of the well, and have significantly low recharge rates. A general description of the bladder pumps installed is provided below. Design details are included in Appendix G.

Two types of pump setups were used: Well System A and Well System L. Well System A pumps include a QED Model T1200M bladder pump equipped with a bottom-attached pump inlet screen. The pump body is constructed of stainless steel. Pre-measured and cut polyethylene tubing is attached to each pump for air injection and water discharge. The tubing is attached to male nipples on a recessed well cup (which sits inside the well casing). All tubing attachments are tested by the manufacturer for tightness. Pumps were installed using System A in wells MW-12, MW-13B, MW-14, MW-15, MW-16A, MW-16B, MW-17B, MW-18A, MW-18B, MW-20A, MW-20B, MW-21, MW-22, and MW-23B.

Well System L uses a similar setup with one exception – the pump inlet is attached to the bottom of the pump via pre-measured lengths of extension tubing. This setup was used where there was over 100 feet of water column above the proposed inlet depth. Using this setup, the pump itself can be set at a shallower depth, thus requiring less gas pressure to operate. This in turn allows faster discharge rates and uses less gas. Wells equipped with System L type of pump systems include MW-16C, MW-17C, MW-18C, MW-20C, MW-23C and MW-23D.

For shallow wells, where the water table is near or within the well-screen area, the pump inlet was placed one foot above the bottom of the screen. For deeper wells, where the well screens are totally submerged, the pump inlets were placed in the center of the screened interval.

Prior to installation of the pumps, ARCADIS personnel measured the depth to water, depth to sediment (if any), and total well depths in each of the wells. The pumps were installed on June 22, 2006, under the observation and supervision of Mr. David Corder of QED.

3.9 Groundwater Sampling

Groundwater monitoring wells installed were sampled from July 6 to July 13, 2006. The groundwater monitoring wells were purged and sampled using low-flow procedures. The low flow purging and sampling setup consisted of compressed nitrogen gas cylinders, a QED MP10 controller, dedicated QED bladder pumps (previously installed), a QED MP20 Flow Cell (Flow Cell) and a dedicated discharge tube. The compressed nitrogen gas (cylinder) is used to operate the pneumatic bladder pumps. The gas is connected to a QED MP10 Pump Controller. The controller is connected to the pump. Discharge from the pump is connected to the Flow Cell via a dedicated discharge tube. A five-gallon bucket was used to contain purge water, while a second bucket was used to contain the sampling containers while collecting the samples.

The flow cell can be used to monitor pH, temperature, conductivity, oxidation reduction potential (ORP), turbidity and dissolved oxygen (DO). Each morning, prior to sampling activities the Flow Cell was calibrated for pH and conductivity. Prior to sampling each groundwater monitoring well, the depth to water was measured with an electronic water level meter. Water levels were recorded on Low-Flow Purging Log Sheets, attached as Appendix H. The maximum allowable drawdown (DD) was then calculated based on the location of the water-air interface (depth to water [DTW]) in the well relative to the top of the well screen (TOS), and the location of the pump inlet (P).

If the water-air interface is above the TOS, the allowable DD is calculated as 25 percent of the water column between the TOS and the P.

$$DD = 0.25 \times (P - TOS)$$

If the water-air interface is below the TOS then the allowable DD is calculated as 25 percent of the water column between the water table and the P.

$$DD = 0.25 \times (P - DTW)$$

The allowable DD was then recorded on the Low Flow Purging Log Sheets.

The controller was turned on and initially set to four cycles per minute, with a 10-second recharge, a 5-second discharge rate, and an estimated discharge rate between 500 to 1,000 milliliters per minute (ml/min). The rate of discharge in ml/min was measured using a graduated 500-ml cup while the drawdown was concurrently measured. The water level in the well casing was monitored at one to two minute intervals. As a result of the nature of pneumatic pumps, the water levels in the well fluctuate between pump recharge (drop in water level) and discharge (rise in water level). Both the low and high water level readings are recorded on the field logs. If significant drawdown (0.2 to 0.3 feet per minute) in the water levels was observed, the pump flow rate was reduced until drawdown stabilized. Passive sampling (collection of the samples prior to stabilization) was performed on well MW-16A due to excessive drawdown. Although Well MW-12 was purged using low-flow techniques, even a flow rate of 100 ml/min resulted in excessive drawdown.

Once the drawdown stabilized, the Flow Cell was connected to the discharge tubing and turned on. The datalogger recorded data once every minute. Stability of field parameters is defined (by the manufacturer) as changes of less than 0.2 pH units, a change of less than 0.2 milligrams per liter (mg/L) DO, a change of less than 0.020 microsiemens per centimeter, and less than 20 millivolts in the ORP.

When stabilization of the water parameters was achieved, sample containers were filled in accordance with the approved SAP as described in the FSP. The type and number of sample containers, as well as the preservatives used are shown in Section 3.10.

Sample containers were labeled, placed in individual sealed bags (i.e., Ziplock), recorded on a chain-of-custody form, and placed in cold storage pending delivery to a State-certified laboratory for analysis. In addition to primary samples collected from the groundwater monitoring wells, ARCADIS collected the following QC samples:

- Trip blanks – one (40-ml VOA vial) per cooler used to store samples for VOC analysis.
- Field Blanks – one field blank, consisting of set of three 40-ml VOA vials, was prepared for each day of sampling.
- Field Duplicates – complete duplicate sample sets were collected at a rate of 10 percent of the primary samples.
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Sample – one complete sample set was collected for use as a MS/MSD.

Sample names were determined using the following protocol.

Primary samples were prefixed with "OC2-", designating the sample being collected from Omega Chemical OU-2, followed by the well name, the sample type, and the sequential number of sample collected. Sample types were designated as shown below.

Sample Type	Description
0	Primary sample
1	Field Duplicate
2	Field Blank
3	Equipment Blank
4	Trip Blank
5	MS/MSD

For example, Sample OC2-PMW18A-0-22, represents a primary sample collected from well PMW18A, and was the 22nd sequential sample collected. The sample OC2-PMW15-1-20 represents a field duplicate sample collected from well PMW15.

Trip blanks, equipment blanks, field blanks were designated by "OC2-00-W-" followed by the sample type and sequential sample number. The sample OC2-00-W-4-18 is a trip blank, and was the 18th sample collected. MS/MSD samples also were numbered using this system.

3.10 Analytical Program

Water samples were submitted to EMAX Laboratories of Torrance, California for chemical analysis. All primary samples, field duplicates and MS/MSD samples were submitted for the following analyses.

Analyte(s) to be Tested	EPA Method	Container Type and Volume (ml)	Preservative	Number of Containers
VOCs	8260B	40 ml glass VOA Vial	HCl Cold	3
1,2,3-trichloropropane (1,2,3-TCP)	8260SIM	40 ml glass VOA Vial	HCl Cold	3
Total Organic Carbon (TOC)	415.1	40 ml glass VOA Vial	HCl Cold	1
Semi-Volatile Organic Compounds (SVOCs)	8270C	1-Liter glass amber	Cold	2
N-Nitrosodimethylamine (NDMA) ¹	1625 Modified	1-Liter glass amber	Cold	2
1,4-dioxane	8270SIM	1-Liter glass amber	Cold	1
Dissolved Metals ²	6010/7000	500-ml poly	Cold	1
Total Kjeldahl Nitrogen (TKN)	351.3	500-ml poly	H ₂ SO ₄ Cold	1
Anions ³	300.0	250-ml poly	Cold	1
TDS ³	160.1	250-ml poly	Cold	(see note 3)
perchlorate ³	314.0	250-ml poly	Cold	(see note 3)
Hexavalent Chromium ³	218.6	250-ml poly	Cold	(see note 3)
Total Cyanide	335.2	125-ml poly	NaOH Cold	1

Notes:
¹ Deviation from originally proposed 8270C.
² Includes Boron and dissolved Silica. The samples for dissolved metals were unfiltered and unpreserved in the field. Samples were filtered and preserved upon arrival at the laboratory.
³ Anions (bromide, chloride, fluoride, sulfates, Nitrogen-N, Nitrite-N), TDS, perchlorate, and hexavalent chromium were analyzed from water contained in same sample container.
HCl – hydrochloric acid.
H₂SO₄ – sulfuric acid.
NaOH – sodium hydroxide

Trip blanks and field blanks were submitted for VOC analysis only.

3.11 Waste Disposal

Soil cuttings, mud and well-development water were placed in 18-cubic-yard, Visqueen-lined, roll-off bins equipped with locking tops. Samples of the various waste-media were collected and submitted for profile analysis in accordance with requirements specified by the waste-disposal contractor. Profile sample analysis indicated that the waste materials were non-hazardous. Based on these results, waste-disposal contractors (Belshire Environmental and Waste Management) transported soil cuttings to TPST Soil Recyclers of California in Adelanto, drilling mud to Demenno Kerdoon in Compton, California, and water to either Demenno Kerdoon or to the Liquid Waste Management in McKittrick, California. Copies of transportation manifests are attached as Appendix I.

4. Findings

4.1 Physical Findings

Based on a comparison of materials encountered during drilling and published isopleths and isopach maps of the various hydrologic units for the Los Angeles Basin area (DWR, 1961), the following hydrologic units are believed to have been encountered during installation of wells MW-12 to MW-23: the Bellflower aquiclude, the Gaspur aquifer (northeast of and including Beasor Avenue), the Artesia aquifer (MW-20), the Gage aquifer, the Hollydale aquifer, the Jefferson aquifer, and the Lynwood aquifer. The materials observed during installation of wells MW-12 to MW-23 are consisted with the aforementioned hydrologic units identified in Section 2.3 of this report.

Well No.	Hydraulic Unit						
	Bellflower	Gaspur	Artesia	Gage	Hollydale	Jefferson	Lynwood
MW-12	X	•				O	O
MW-13A	X	O				O	O
MW-13B	X	•				O	O
MW-14	X	•				O	O
MW-15	X	•		?	O	O	O
MW-16A	X			•	O	O	O
MW-16B	X			X	•	O	O
MW-16C	X			X	X	•	O
MW-17A	X			X	•	O	O
MW-17B	X			X	•	O	O
MW-17C	X			X	X	X	•
MW-18A	X			X	•	O	O
MW-18B	X			X	•	O	O
MW-18C	X			X	X	X	X
MW-19	X			•	O	O	O
MW-20A	X		?	•	O	O	O
MW-20B	X		?	X	•	O	O
MW-20C	X		?	X	X	•	O
MW-21	X	X		•	O	O	O
MW-22	X				•	O	O
MW-23B	X			X	•	O	O
MW-23C	X			X	X	•	O
MW-23D	X			X	X	X	•
EW-1	X			X	•	O	O

Source: CDWR, 1961 – Bulletin 104, boring logs.

X indicates unit encountered

O indicates unit present at that location but beyond the depth of the well

• indicates well is screened in the indicated unit.

During the installation of wells MW-20 and MW-21, crude-oil-affected soil was encountered at shallow depths. In well-bore PMW20, black, crude-saturated silt was encountered at depths ranging from approximately 8 to 12 feet bgs. In well-bore MW-21, crude-impacted soil was encountered from approximately 3 to 17 feet bgs. Both these wells are located within the Santa Fe Springs Former Oil Field. It is likely that crude-impacted soil encountered during drilling operations are residual soils left in place prior to development of the area.

Groundwater was encountered at various depths across the site, as shown in Table 2.

4.2 Chemical Findings – Depth Specific Water Samples

Depth-specific water samples were collected at just beneath the first water encountered during drilling procedures, and at 10-foot intervals thereafter, where possible. The samples were collected using a Simulprobe® as described in Section 3.5.4 of this report. A list of depth specific water samples collected during drilling procedures (also shown on boring logs in Appendix D) is provided in Table 3. Depth-specific water samples were analyzed for VOCs only. Chemical results for the samples are summarized in Table 4. Copies of laboratory reports are attached as Appendix J. Chemical results are briefly discussed below.

- MW-12: One primary and one duplicate water sample were collected at approximately 102 feet bgs. The following VOCs were detected in the samples.

VOC Analyte	Depths Detected	Results/Comments
1,1-DCE	102 feet	12 µg/L and 19 µg/L
Benzene	102 feet	0.55 µg/L
Chloroform	102 feet	0.58 µg/L and 0.67 µg/L
PCE	102 feet	1.9 µg/L and 3.1 µg/L
TCE	102 feet	400 µg/L and 470 µg/L

- MW-13: One primary and one duplicate water sample were collected at approximately 127 feet bgs. Only PCE was detected as noted below.

VOC Analyte	Depths Detected	Results/Comments
PCE	127 feet	.9 µg/L for both primary and duplicate

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- MW-14: Three primary water samples were collected at this location, at approximately 57, 67, and 77 feet bgs. The following table summarizes the findings.

VOC Analyte	Depths Detected	Results/Comment
1,1-dichloroethane (DCA)	57 feet	0.38 µg/L.
1,1-DCE	57, 67, and 77 feet	0.68 to 110 µg/L. Maximum concentration at 57 feet bgs, decreased with depth to 34 µg/L at 77 feet bgs.
1,2,4-trimethylbenzene (TMB)	67 and 77 feet	0.24J to 2.6 µg/L. Maximum concentration at 67 feet bgs, decreased with depth to 0.24J µg/L at 77 feet bgs.
1,2-DCA	57 and 77 feet	Maximum concentration, 1.2 µg/L at 57 feet bgs, decreased with depth to not detected at 67 feet bgs, and increases to 0.90 µg/L (below MCLs) at 77 feet bgs.
1,3,5-TMB	67 feet	0.20 µg/L at 67 feet – decreased with depth to not detected at 77 feet bgs.
Benzene	57 feet	0.17 µg/L at 57 feet bgs – decreased with depth to not detected at 67 feet bgs.
Bromodichloromethane	67 and 77 feet	2.4 µg/L at 67, decreased with depth to 0.55 µg/L at 77 feet bgs.
Bromoform	67 and 77 feet	13 µg/L at 67, decreased with depth to 2.3 µg/L at 77 feet bgs.
Chloroform	57, 67, and 77 feet	2.3 µg/L at 57 feet bgs, decreased with depth to 0.46 µg/L at 67 feet, and increases to a maximum of 8.3 µg/L at 77 feet bgs.
cis-1,2-DCE	57 and 77 feet	1.2 µg/L at 57 feet bgs, decreased with depth to not detected at 67 feet, and increases to 0.23J µg/L (below MCLs) at 77 feet bgs.
Dibromochloromethane	67 and 77 feet	8.6 µg/L at 67 feet, decreased with depth to 1.5 µg/L at 77 feet bgs.
Dibromomethane	77 feet	0.51 µg/L at 77 feet.
Freon 113	57 feet	0.43J µg/L at 57 feet, decreased with depth to not detected at 67 feet bgs.
Ethylbenzene	67 and 77 feet	3.3 µg/L at 67 feet bgs, decreased with depth to 0.89 µg/L (below MCLs) at 77 feet bgs.
Isopropylbenzene	67 feet	0.21J µg/L at 67 feet bgs, decreased with depth to not detected at 77 feet bgs.
Total Xylenes	67 and 77 feet	18.4 µg/L at 67 feet bgs, decreased with depth to 3.5 µg/L (below MCLs) at 77 feet bgs.
n-propylbenzene	67 and 77 feet	0.81 µg/L at 67 feet bgs, decreased with depth to 0.23J µg/L (below MCLs) at 77 feet bgs.
Naphthalene	67 and 77 feet	0.16J to 0.12J µg/L (below MCLs) at 67 and 77 feet bgs, respectively.
PCE	57, 67 and 77 feet	200 µg/L at 57 feet bgs, decreased with depth to 1.2 µg/L at 67 feet, and increases to 48 µg/L at 77 feet bgs.
Toluene	67 and 77 feet	4.2 µg/L at 67 feet, decreased with depth to 1.3 µg/L (below MCLs) at 77 feet
TCE	57, 67 and 77 feet	51 µg/L at 57 feet, decreased with depth to 0.37J µg/L at 67 feet, and increasing to 21 µg/L at 77 feet bgs.
Freon 11	57, 67 and 77 feet	110 µg/L at 57 feet, decreased with depth to 0.55 µg/L at 67 feet and increasing to 43 µg/L (below MCLs) at 77 feet

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- MW-15: Four primary water samples were collected at depths of approximately 45, 50, 60, and 72 feet bgs. VOCs were detected as follows.

VOC Analyte	Depths Detected	Results/Comment
1,1-DCA	50, 60 and 72 feet	0.85 to 3 µg/L (below MCLs). Maximum concentration at 50 feet bgs, decreased with depth to 0.85 µg/L at 60 feet, increasing to 2 µg/L at 72 feet bgs.
1,1-DCE	45, 50, 60 and 72 feet	9.4 to 990 µg/L. Maximum concentration at 50 feet bgs, decreased with depth to 170 µg/L at 60 feet, increasing to 660 µg/L at 72 feet bgs.
1,2-DCA	50, 60 and 72 feet	3.8 to 12 µg/L. Maximum concentration at 50 feet, decreasing to 3.8 µg/L at 60 feet, increasing to 7.7 µg/L at 72 feet bgs.
Chloroform	45, 50, 60 and 72 feet	1.8 to 180 µg/L. Maximum concentration at 50 feet, decreasing to 39 µg/L at 60 feet, increasing to 110 µg/L at 72 feet bgs.
cis-1,2-DCE	50, 60 and 72 feet	1.9 to 6.6 µg/L (below MCLs). Maximum at 50 feet, decreasing to 1.9 µg/L at 60 feet, increasing to 3.2 µg/L at 72 feet.
trans-1,2-DCE	50 and 72 feet	1.3 and 0.85 µg/L
Freon 113	50 and 72 feet	2.1 to 3.4 µg/L (below MCLs).
PCE	45, 50, 60 and 72 feet	57 to 1,300 µg/L. Maximum of 1,300 µg/L at 50 feet, decreases to 220 µg/L at 60 feet, and increases to 810 µg/L at 72 feet.
Toluene	60 feet	1.4 µg/L
TCE	45, 50, 60 and 72 feet	8.3 to 410 µg/L. Maximum at 50 feet, decreases to 120 µg/L at 60 feet, and increases to 180 at 72 feet.
Freon 11	45, 50, 60 and 72 feet	3.8 to 470 µg/L. Maximum at 50 feet, decreases to 71 µg/L at 60 feet, and increases to 430 at 72 feet.

- MW-16: Ten primary samples and one duplicate sample were collected at depths ranging from 57 to 172 feet bgs. VOCs were detected as follows.

VOC Analyte	Depths Detected	Results/Comment
1,1-DCA	57, 62, 72 and 82 feet	2.2-27 µg/L. 8.2 µg/L at 57 feet, increasing to 27 µg/L at 62 feet, decreased with depth to below MCLs at 72 feet bgs.
1,1-DCE	57, 62, 72 and 82 feet	2.5 to 30 µg/L. Maximum concentration at 57 feet bgs, decreased with depth to below MCLs at 82 feet bgs.
Chloroform	72 feet	1.2 µg/L.
cis-1,2-DCE	57, 62, 72 and 82 feet	2.2-46 µg/L (below MCLs). Maximum at 62 feet bgs, decreased with depth to not detected at 92 feet bgs.
PCE	57, 62, 72 and 82 feet	14 to 46 µg/L. Maximum at 762 feet bgs, decreased with depth to not detected at 92 feet bgs
TCE	57, 62, 72, 82, 133, 142 and 162 feet	0.54 to 38 µg/L. Maximum at 72 feet bgs, decreased with depth to 0.54 µg/L at 92 feet, increases to 21 µg/L at 133 feet, and decreases to not detected at 172 feet bgs..
Freon 11	57, 62, 72 and 82 feet	110 µg/L at 57 feet, decreased with depth to 0.55 µg/L at 67 feet and increasing to 43 µg/L at 77 feet

- MW-17: Seven primary samples and one duplicate sample were collected at depths ranging from 51.5 to 192 feet bgs. VOCs were detected as follows.

VOC Analyte	Depths Detected	Results/Comment
1,1,1-trichloroethane (TCA)	97 feet	9 µg/L. Decreased with depth to not detected at 117 feet.
1,1-DCA	97 feet	11 µg/L. Decreased with depth to not detected at 117 feet bgs.
1,1-DCE	97 and 117 feet	1 to 75 µg/L. Maximum concentration at 97 feet bgs, decreased with depth to below MCLs at 117 feet bgs.
Chloroform	97 feet	1.6. µg/L.
cis-1,2-DCE	97 and 117 feet	0.55 to 30 µg/L (below MCLs). Maximum at 97 feet bgs, decreased with depth to less than MCLs at 117 feet bgs.
PCE	97, 117, 147, 172 and 182 feet	0.83 to 240 µg/L. Maximum at 97 feet bgs, decreased with depth to below MCLs at 147 feet bgs
TCE	97, 117, 172, 182 and 192 feet	1.2 to 130 µg/L. Maximum at 97 feet bgs, decreased with depth to not detected at 147 feet bgs, increasing to 15 µg/L at 172 feet, and decreasing to 1.2 µg/L at 192 feet bgs.
Freon 11	97 and 117 feet	0.56 to 23 µg/L. Maximum at 97 feet bgs, decreased with depth to not detected at 147 feet bgs.

- MW-18: Eleven primary and one duplicate samples were collected at approximate 10-foot intervals from 52 to 187 feet bgs. VOCs were detected as follows.

VOC Analyte	Depths Detected	Results/Comment
Chloroform	187 feet	1.5 µg/L.
Naphthalene	128 feet	1.2 µg/L. Decreased with depth to not detected at 148 feet bgs.
PCE	67, 77, 87, 97 and 115 feet	0.54 to 1.2 µg/L (below MCLs). Decreased with depth to not detected at 148 feet.
TCE	67 feet	1.5 µg/L. Decreased with depth to not detected at 77 feet bgs.

- MW-19: One primary sample was collected at approximately 68 feet bgs. VOCs were detected as follows.

VOC Analyte	Depths Detected	Results/Comment
1,2,4-TMB	68 feet	0.73 µg/L
Ethylbenzene	68 feet	1.1 µg/L
Total Xylenes	68 feet	5.7 µg/L
Toluene	68 feet	1.5 µg/L
Bromodichloromethane	68 feet	1.6 µg/L
Bromoform	68 feet	5.3 µg/L
Dibromochloromethane	68 feet	4.6 µg/L

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- MW-20: Ten primary and two duplicate samples were collected at this location. Water samples were collected at 10-foot intervals from 73 feet to 183 feet, with exception of at 163 and 173 (no recovery) feet bgs. VOCs were detected as follows.

VOC Analyte	Depths Detected	Results/Comment
1,1-DCA	73, 83, 93, 103, 113, 123, 133 and 143 feet	1.8 to 7.8 µg/L. Maximum at 73 and 93 feet bgs decreased with depth to not detected at 153 feet bgs.
1,1-DCE	73, 83, 93, 103, 113, 123, 133, 143 and 153 feet	1.0 to 68 µg/L. Maximum concentration at 103 feet bgs, decreased with depth to not detected at 183 feet bgs.
1,2-DCA	73, 83, 93, 103, 113, 123, 133 and 143 feet	0.88 to 2.2 µg/L, decreased with depth to not detected at 153 feet bgs.
1,2-dichloroethane	73, 83, 93, 103, 113, 123, 133 and 143 feet	0.62 to 5.4 µg/L. Maximum concentration at 103 feet bgs, decreased with depth to not detected at 153 feet bgs.
Bromoform	83 feet	0.93 µg/L
Chloroform	73, 83, 93, 103, 113, 123, 133 and 143 feet	0.62 to 1.4 µg/L. Maximum at 103 feet bgs. Decreased with depth to not detected at 153 feet bgs.
cis-1,2-DCE	73, 83, 93, 103, 113, 123, 133, 143, 153, 163, 173 and 183 feet	0.59 to 11 µg/L (below MCLs). Maximum at 73 and 83 feet bgs, decreased with depth to 0.59 µg/L at 113 feet bgs, increasing to 1.5 µg/L at 153 feet, and staying relatively consistent to 183 feet bgs.
Dibromochloromethane	83 feet	0.52 µg/L
PCE	73, 83, 93, 103, 113, 123, 133 and 143 feet	15 to 40 µg/L. Maximum at 73 and 93 feet bgs, decreased with depth to not detected at 153 feet bgs,
TCE	73, 83, 93, 103, 113, 123, 133, 143 and 153 feet	8.3 to 50 µg/L. Maximums at 93 feet bgs., decreased with depth to not detected at 183 feet bgs.
Freon 11	73, 83, 93, 103, 113, 123, 133 and 143 feet	1.1 to 5.0 µg/L. Maximum at 93 feet bgs. Decreased with depth to not detected at 153 feet bgs.

- MW-21: Two primary samples were collected at this well location: at 69 and 79 feet bgs. VOCs were detected as follows.

VOC Analyte	Depths Detected	Results/Comment
1,2,4-TMB	69 and 79 feet	1.1 µg/L
Ethylbenzene	69 and 79 feet	1.6 µg/L
Total Xylenes	69 and 79 feet	8.8 µg/L
Toluene	79 feet	2.1 µg/L
Bromodichloromethane	79 feet	0.83 µg/L
Bromoform	79 feet	2.0 µg/L
Chloroform	79 feet	0.57 µg/L
Dibromochloromethane	79 feet	2.3 µg/L
PCE	69 and 79 feet	1.7 µg/L to 1.8 µg/L

- MW-22: Three primary samples and one duplicate sample were collected at this well location: at 68, 78 and 88 feet bgs. VOCs were detected as follows.

VOC Analyte	Depths Detected	Results/Comment
1,2,4-TMB	68 feet	0.24J µg/L
Ethylbenzene	88 feet	0.3 µg/L
Total Xylenes	88 feet	C 1.48J µg/L
Toluene	88 feet	0.49J µg/L
Bromodichloromethane	88 feet	1.3 µg/L
Bromoform	88 feet	2.5 µg/L
Dibromochloromethane	88 feet	3.1 µg/L
Chloroform	68, 78 and 88 feet	0.39 to 1.4 µg/L
PCE	68, 78 and 88 feet	0.37 to 1.4 µg/L
TCE	78 feet	0.28 µg/L

- MW-23: Twelve primary water samples and two duplicates were collected at this location, at approximate 10-foot intervals from 42 to 62, from 82 to 92, and from 132 to 192 feet bgs. VOCs were detected as follows.

VOC Analyte	Depths Detected	Results/Comment
1,1,2-TCA	42 and 62 feet	0.58 to 0.64 µg/L, decreased with depth to not detected at 82 feet bgs.
1,1-DCA	42 and 62 feet	2.6 to 2.9 µg/L, decreased with depth to not detected at 82 feet bgs.
1,1-DCE	42, 52, 62, 82, 92, 132, 162 and 182 feet	0.53 to 430 µg/L. Maximum concentration at 62 feet bgs, decreased with depth to 0.53 µg/L at 132 feet bgs. Remains below MCLs from 162 to 182 feet bgs
1,2-DCA	42, 52 and 62 feet	4.3 to 15 µg/L, decreased with depth to not detected at 82 feet bgs.
Benzene	82 feet	1.0 µg/L (MCL)
Bromoform	152 and 172 feet	1.3 and 2.3 µg/L, respectively. Decreased with depth to not detected at 182 feet bgs.
Carbon tetrachloride	162 feet	1.0 µg/L.
Chloroform	42, 52, 62, 82, 92, 132 and 162 feet	0.76 to 140 µg/L. Maximum at 42 and 62 feet bgs. Decreased with depth to not detected at 172 feet bgs.
cis-1,2-DCE	42, 52, 62, 82, 92 and 182 feet	1.6 to 30 µg/L (below MCLs). Maximum at 42 feet bgs, decreased with depth to not detected at 142 feet bgs, and increases to 1.6 µg/L at 182 feet bgs.
trans-1,2-DCE	42 and 62 feet	1.8 and 1.2 µg/L, respectively.
Dibromochloromethane	172 feet	0.69 µg/L.
PCE	42, 52, 62, 82, 92, 132, 162, 182 and 192 feet	1.8 to 660 µg/L. Maximum at 62 feet bgs, decreased with depth to not detected at 142 feet bgs, then increasing to 5.8 µg/L at 162 feet bgs, and 27 µg/L at 182 feet bgs, decreasing to 0.52 µg/L (below MCLs) at 192 feet bgs..
Toluene	42 and 142 feet	1.5 and 0.61 µg/L, respectively.
TCE	42, 52, 62, 82, 92, 132, 162 and 182 feet	1.6 to 580 µg/L. Maximums at 62 feet bgs., decreased with depth to not detected at 152 feet bgs, then increases to 120 µg/L at 162 feet bgs, then decreases again to 1 µg/L at 192 feet bgs.
Freon 11	42, 52, 62, 82, 162 and 182 feet	1.4 to 110 µg/L (below MCLs). Maximum at 62 feet, decreased with depth to not detected at 92 feet, detected at 1.4 µg/L at 162 feet, increasing to 11 µg/L at 182 feet, decreasing to not detected at 192 feet bgs.

4.3 Chemical Findings – Baseline Groundwater Sampling

A summary of the chemical findings for groundwater monitoring samples collected in July 2006 is presented below. A list of sample identifications is presented in Table 5. Chemical data are summarized in Tables 6 to 10 and discussed in the following sections. Laboratory reports are included in Appendix K. Trends in the lateral and vertical extent of chemicals are discussed in Section 6.

4.3.1 VOCs

A total of 19 VOCs were detected in one or more of the monitoring wells. Concentrations of VOCs detected during the groundwater monitoring event of July 2006 are summarized in Table 6.

4.3.2 SVOCs

Bis(2-Ethylhexyl)phthalate was the only SVOC detected during the groundwater sampling. This compound is a common contaminant associated with latex gloves. Table 7 summarizes the results for SVOCs.

4.3.3 Other Compounds

Other compounds (1,2,3-TCP, NDMA, hexavalent chromium, perchlorate and 1,4-dioxane), NDMA, hexavalent chromium, perchlorate and 1,4-dioxane were detected. Concentrations of other compounds detected during the groundwater monitoring event of July 2006 are summarized in Table 8.

4.3.4 Total Dissolved Metals

Eighteen dissolved metals were detected in one or more of the groundwater monitoring wells during the July 2006 monitoring event. Results are summarized in Table 9.

4.3.5 Anions

Anion constituent tested for, included TDS, bromide, chloride, fluoride, nitrogen as nitrate, nitrogen as nitrite, organophosphate P, and sulfate.

Concentrations of anions detected during the groundwater monitoring event of July 2006 are summarized in Table 10.

4.3.6 TKN

TKN concentrations ranged from 0.0906J to 0.639J mg/L. The highest concentration was detected in well MW-12. Concentrations of TKN detected during the groundwater monitoring event of July 2006 are summarized in Table 10.

4.3.7 Total Cyanide

Total cyanide concentrations were detected in only wells MW12 and MW13. Concentrations ranged from 0.0052 in MW-13 to 0.0069 mg/L in MW-12 to 0.0069 mg/L. Concentrations of total cyanide detected during the groundwater monitoring event of July 2006 are summarized in Table 10.

4.3.8 Total Organic Carbon (TOC)

TOC was detected in water samples from all wells except MW-18C. Concentrations of TOC ranged from 0.526J to 32 mg/L. Concentrations of TOC detected during the groundwater monitoring event of July 2006 are summarized in Table 7.

4.3.9 Total Dissolved Solids (TDS)

TDS were detected in water samples from all wells. Concentrations of TDS ranged from 430 to 2,970 mg/L per liter. Concentrations of TDS detected during the groundwater monitoring event of July 2006 are summarized in Table 10.

5. Data Usability and Data Quality Evaluation

An integral part of the FSP was the QA/QC Program. The QA/QC Program was established to ensure the reliability and compatibility of data generated during the implementation of the FSP. The QAPP provided specific descriptions of the field and laboratory procedures which were employed for verifying and maintaining performance quality for collection of environmental samples and subsequent chemical analysis. The QAPP set forth the policies, procedures and activities for the identification and documentation of the precision, accuracy, and completeness of the data. The QAPP also provides criteria to evaluate how representative the data are of the conditions at the site during the implementation of the FSP.

During the well installation and sampling program, a variety of data were collected. Samples collected were analyzed for a number of different chemicals, depending on the rationale for sample collection. Data collected were evaluated to determine which of the chemicals identified are likely to be site-related and to assess whether the reported concentrations for these chemicals are of acceptable quality. The following sections discuss the appropriateness for use of the methodologies and the evaluation of the data obtained.

Many factors must be evaluated to determine whether or not the DQOs outlined in the RIWP were met during implementation of the FSP. These factors include using the sampling equipment proposed in the FSP; determining if the appropriate laboratory analytical methods were used (compared with those proposed in the FSP and QAPP), verifying that appropriate MDLs were met; evaluating how closely the chemical results reflect actual concentrations in the sampled media (representativeness); evaluating how close the measured value is to the true value (accuracy); evaluating the reproducibility of repetitive measurements (precision); and evaluating the completeness of the data set by comparing the amount of valid data compared to expected data under ideal conditions. In accordance with the QAPP, an independent third party, Laboratory Data Consultants of Carlsbad, California (LDC), performed an EPA-Level III review of 10 percent of the laboratory analytical and QC data generated as part of the baseline groundwater sampling. Copies of LDC's review of analytical and QC data is attached as Appendix L. This section of the report presents these evaluations of the data sets collected for this project.

5.1 Field Sampling

5.1.1 Depth-Discrete Water Sampling

Depth-discrete water samples were collected during drilling activities using a Simulprobe[®] sampling system. The system is described in Section 3.5.4. Sampling problems and field conditions that may have affected data usability include:

- Incompatibility with formation materials. In tight clay conditions, little to no water entered the sampling system.
- Entrance of drilling mud into the sampler instead of formation water. This condition occurred at MW-16 and MW-23. It is possible the drilling mud penetrated ahead of the core-bit in coarse materials. Chemical data from the drilling mud was determined to be not valid, and is not used to make conclusions regarding the vertical extent of chlorinated VOC impact.

- Pinching of the sampling tubes as a result of expansion and contraction of the split-spoon covers during advancement of the system. This condition resulted in no sample collection, and occurred at MW-16, MW-18 and MW-20. As no samples could be collected, the only impact this condition resulted in was a lower percent completeness.

5.1.2 Groundwater Monitoring

Groundwater monitoring samples were collected using dedicated bladder pumps and low-flow sampling methodologies. The use of the dedicated bladder pumps was directed by EPA. The pumps were certified clean by the pump manufacturer, QED, as evidenced by QC samples certificates accompanying the pumps. Pumps were not installed in wells MW-13A, MW-17A and MW-19, upon agreement with EPA and EPA's oversight contractor, CH2M Hill. Well MW-13A is a dry well; MW-17A and MW-19 both had limited water at the time of ordering the pumps, and had poor recovery.

Full sample sets were recovered from the wells with the exception of MW-19. At this location, sufficient sample containers were filled to run a complete suite of analyses per the FSP; however, only one 1-liter amber bottle was collected for SVOCs instead of the requested two. This, however, did not affect the laboratory's ability to analyze this sample.

5.2 Analytical Methods

The analytical methodology used for data collection was assessed for appropriateness during development and review of the FSP. With the following exception, the analytical program outlined in the FSP was followed.

- NDMA was analyzed using EPA Method 8270SIM whereas the FSP analytical program directed that NDMA be analyzed by EPA Method 1625.

Analytes detected at concentrations below the reportable limit, but above the MDL were issued a "J" flag qualifier, as shown in Table 4 and Tables 6 through 10. Analytes detected at concentrations above the calibration curve were issued an "E" flag qualifier. These samples were then diluted and reanalyzed at the lower dilution. Samples diluted by the laboratory were issued a "DIL" suffix to their sample ID. Concentrations of chemicals detected, that may have been affected by issues associated with laboratory QC (calibration, detections in QC samples, etc) were issued "J" flags. Similarly, non-detect results for specific analytes that may have been affected by issues associated with laboratory QC were issued "UJ" flags.

5.2.1 Cooler Temperature Upon Arrival

According to laboratory receipt logs, sample temperatures upon arrival ranged between 3 and 4 degrees Celsius.

5.2.2 Holding Time

A review of date sampled, date received, and date of extraction indicate that no holding times were exceeded.

5.2.3 Surrogate Recovery

Surrogate recoveries were within acceptable ranges.

5.2.4 MS/MSD Evaluation

MS/MSDs run by the laboratory were within acceptable range.

5.3 Representativeness

Representativeness is a measure of how closely the chemical results to be evaluated reflect the actual concentrations or distribution of the COCs in the matrix samples. Alternatively, representativeness represents an evaluation of whether chemicals detected in the samples are site-related or the result of cross-contamination or other environmental conditions. It is a combination of accuracy and precision. Several field QC samples were collected during the course of this investigation to assist in this evaluation: trip blanks, field blanks, and equipment blanks. Trip blanks assist in evaluating if cross contamination occurs in transit of the samples. Field blanks are used to evaluate the potential for contamination of sampled water during transfer from the sampling device into the sampling containers (i.e as a result of VOCs in ambient air in the sample-collection area). Equipment blanks assist in evaluating the potential of cross contamination due to improper decontamination procedures

5.3.1 Depth-Discrete Water Sampling

ARCADIS collected field blanks and equipment blanks during the depth discrete water sampling. Field blanks were collected each day depth-discrete water sampling was performed. Equipment blanks were collected once per location. Trip blanks were collected and sent with every shipment of samples. Field QC samples were analyzed for VOCs using EPA Method 8260B.

Trip Blanks – Thirty-five trip blanks were analyzed during well drilling activities. Chemical results of trip blanks indicated that VOCs were not detected in all but three samples. Methylene chloride was detected in three of the samples (OC2-PMW14-W-4-01, OC2-PMW22-W-4-02, and OC2-PMW22-W-4-08) at concentrations ranging from 0.24J to 0.28J µg/L. Methylene chloride is a common laboratory contaminant.

Field Blanks – Seventeen field blanks were analyzed during drilling activities. Chemical results of field blanks indicated only two detects (sample IDs OC2-PMW13-W-2-03 and OC2-PMW18-W-2-02), both of chloroform, at concentrations of 0.85 to 0.87 µg/L. While chloroform is a contaminant of concern, it is also a common trihalomethane.

Equipment Blanks – Fifteen equipment blanks were collected and analyzed during drilling activities. Chemical results of equipment blanks indicated three detects: two of chloroform (sample IDs OC2-PMW13-W-3-06 and OC2-PMW18-W-3-08) at concentrations of 0.74 and 0.78 µg/L, and one for Naphthalene (sample OC2-PMW22-W-3-01) at 0.23J µg/L. The same water source was used for the equipment blanks as those for the field blanks at each of the locations

Chemical results of duplicate samples, when compared with the associated primary samples, indicate Relative Percent Differences (RPDs) ranging from 0 to 48 percent. The acceptable RPD for duplicate samples is 20 percent. The acceptable RPD was exceeded in the following samples for the following chemicals:

- OC2-PMW12-W-0-03 for 1,1-DCE (45 percent); and, PCE (48 percent).
Concentrations of 1,1-DCE in the primary and duplicate samples were 19 and 12 µg/L, respectively. Concentrations of PCE were 3.1 and 1.9 µg/L, respectively.

Based on the above, it is believed that those chemicals detected in primary samples are representative of those found in the groundwater sampled. The methylene chloride detected in the three trip blanks is a typical laboratory contaminant. Methylene chloride was detected in only the three trip blanks, and not in the primary samples. Although chloroform was detected in two field blanks and in two equipment blanks, it is already a chemical of concern. Chloroform appears (typically at higher concentrations) in primary samples in which other VOCs are also present, but does not appear in those primary samples collected at the locations where chloroform was present in the field QC samples.

Based on the above evaluation, chemical results for depth-discrete water samples collected during the drilling program are representative of actual groundwater conditions.

5.3.2 Groundwater Monitoring

Field QC samples were collected in accordance with procedures and frequencies outlined in the EPA-approved FSP and QAPP. Trip blanks, prepared by and supplied by EMAX Laboratories, were placed in those coolers containing water samples designated for VOC analysis (EPA Method 8260B). Field blanks were prepared on each day of sampling activities with the exception of July 13, 2006. Equipment blanks were not collected as purging and sampling was performed using new dedicated bladder pumps. For wells MW-17A and PMW19, the wells were purged and sampled using new, disposable, polyethylene bailers.

Chemical results of trip blanks indicated that, with the exception of a trace concentration of 0.26J µg/L Freon 11 (trichlorofluoromethane, sample ID OC2-00-W-4-29) on July 11, 2006, VOCs were not detected in any of the trip blanks.

Chemical results of field blanks indicated that, chloroform was detected in each of the field blanks at concentrations of 0.31 to 0.34 µg/L. Water used for field blanks was deionized water prepared by and supplied by the laboratory. Primary sample results collected on the same day will be issued a J flag.

Based on the above, chemical results are deemed to be representative of actual concentrations in the groundwater.

5.4 Completeness

Completeness is a measure of the amount of valid data compared to the amount of valid data expected under ideal conditions. A discussion of completeness of the data sets for the depth-discrete water samples and the groundwater monitoring samples follows.

5.4.1 Depth-Discrete Water Sampling

Approximately 85 attempts were made to collect depth discrete water samples during drilling activities. Sixty-five primary water samples were collected: 5 attempts failed due to tight formation material; 7 attempts failed due to mud intrusion; and, 8 attempts failed due to mechanical issues (pinched Simulprobe tubes). The percentage of successful samples collected compared to total attempts, not including attempts failed due to formation conditions, is 81 percent.

5.4.2 Groundwater Monitoring

Water samples were collect from all the groundwater monitoring wells except MW-13A. A water sample was not collected from MW-13A as the well was dry. The percentage of successful sample collection is 100 percent.

5.5 EPA Level III Laboratory Data Review

As previously indicated, LDC performed an EPA-Level III data quality review of laboratory results for 10 percent of the groundwater monitoring samples collected. Laboratory results for the full suite of analyses for samples OC2-PMW15-)-17, OC2-PMW18A-0-22, and OC2-PMW18B-0-23 were submitted for LDC's review. The analyses were validated using the following documents, as applicable to each method:

- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999;
- USEPA, Contract Laboratory Program national Functional Guidelines for Inorganic Data Review, October 2004; and
- EPA SW 846, Third Edition, Test methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998.

A review of LDCs findings follow. Copies of LDCs review are included as Appendix L. Only QC issues identified will be discussed below.

- Volatile Organics: QC issues identified by LDC include exceedances in Initial Calibration Relative Response Factors (RRFs), Continuing Calibration exceedances in Percent Differences, Continuing Calibration exceedances in RRFs; and Contract Required Quantitation Limits (CRQLs). These are summarized below.

Lab ID	Sample ID	Compound	Flag	Reason
06G039	OC2-PMW15-0-17	Acetone	J (all detects)	Initial Calibration RRF
	OC2-OMW15-0-17DL		UJ (all non detects [NDs])	
	OC2-PMW18A-0-22	2-Butanone	J (all detects)	
	OC2-PMW18B-0-23		UJ (all NDs)	
06G039	OC2-PMW15-0-17	Bromomethane	J (all detects)	Continuing Calibration (% Difference)
	OC2-PMW18A-0-22		UJ (all NDs)	
	OC2-PMW18B-0-23	Cyclohexane	J (all detects) UJ (all NDs)	
06G039	OC2-PMW15-0-17	Acetone	J (all detects)	Continuing Calibration (RRF)
	OC2-OMW15-0-17DL		UJ (all NDs)	
	OC2-PMW18A-0-22	2-Butanone	J (all detects)	
	OC2-PMW18B-0-23		UJ (all NDs)	
06G039	OC2-PMW15-0-17	1,1 DCE	J (all detects)	Compound Quantitation and CRQLs
		Chloroform	J (all detects)	
		PCE	J (all detects)	
		TCE	J (all detects)	
		Freon 11	J (all detects)	
		Freon 113	J (all detects)	

- Semi-Volatile Organics: QC issues identified by LDC include exceedances in the Continuing Calibration percent differences. These are summarized below.

Lab ID	Sample ID	Compound	Flag	Reason
06G039	OC2-PMW15-0-17	Hexachlorocyclopentadiene	J (all detects)	Continuing Calibration (% Difference)
	OC2-PMW18A-0-22		UJ (all NDs)	
	OC2-PMW18B-0-23			

It should be noted that hexachlorocyclopentadiene was not detected in any of the samples collected.

- Semi-Volatile Organics: QC issues identified by LDC include the presence of Bis(2 ethylhexyl)phthalate in the method blank, and exceedances in the RPDs of laboratory control samples (LCS). These are summarized below.

Lab ID	Sample ID	Compound	Flag	Reason
06G039	OC2-PMW15-0-17 OC2-PMW18A-0-22 OC2-PMW18B-0-23	Bis(2 ethyl hexyl) phthalate Pentachlorophenol	J (all detects) UJ (all NDs) J (all detects) UJ (all NDs)	LCS-RPDs

As a result of the presence of Bis(2 ethyl hexyl) phthalate in the method blank, LDC modified the reported concentrations by adding a "U" flag in samples OC2-PMW18A-0-22 and OC2-PMW18B-0-23. The reported concentrations of this analyte in these samples should now read 2U µg/L and 2.1U µg/L, respectively. The modification with the "U" flag indicates that, although the laboratory reported a detectable concentration, QC data indicates this analyte was not present in the sample.

- 1,2,3-TCP: all data was found to be acceptable.
- 1,4-dioxane: all data was found to be acceptable.
- NDMA: all data was found to be acceptable.
- Dissolved Metals: antimony was detected in the initial calibration blank at a concentration of 0.353 µg/L. Subsequently, the antimony concentration in sample OC2-PMW18A-0-22 was modified to read 0.406U µg/L.
- Wet Chemistry (pH, TDS, anions, cations, total cyanide, TOC, TKN, hexavalent chromium and perchlorate): calibration verification frequency and analysis criteria were met for all analytes with the exception of TKN. The percent recovery limits were exceeded for the ICV laboratory QC sample. Subsequently, TKN results for samples OC2-PMW15-0-17, OC2-PMW18A-0-22, and OC2-PMW18B-0-23 were issued "J" flags for all detects.

Based on LDC's review of laboratory analyses and QC data, all data were deemed acceptable, with few exceptions. These exceptions required the issuance of "J", "U", or "UJ" flags to some analytes.

6. Discussion of Results

A discussion of physical and chemical results follows.

6.1 Physical Results

Based on the analysis described in Section 4.1, the following observations were made:

- Wells MW-12, MW-13B, MW-14 and MW-15 appear to be completed in the Gaspar aquifer. Groundwater in these wells occur at elevations ranging from 123.71 (MW-15) to 135.43 feet above msl (MW-12). Groundwater elevation data indicates flow in a southeasterly direction (e.g., from MW-12 towards MW-13). This differs from previous flow patterns shown (Weston, 2003). In the past, groundwater has been depicted as flowing in a more southwesterly direction.
- Wells MW-16A, MW-19, MW-20A and MW-21 appear to be screened in the Gage aquifer. Groundwater elevations range from 73.96 feet above msl (MW-20A) to 107.12 feet above msl (MW-16A) and appear to flow to the southwest. This is generally consistent with previously shown flow directions (Weston, 2003).
- Wells MW-16B, MW-17A, MW-18A, MW-20B, MW-22, MW-23B appear to be screened in the upper sand member of the Hollydale. Wells MW-17B, MW-18B appear to be screened in the lower sand member of the Hollydale. Piezometric elevations of groundwater in the upper sand member of the Hollydale ranges from 73.63 (MW-20B) to 120.73 (MW-23B) feet above msl, and flows to the southwest.
- Wells MW-16C, MW-20C and MW-23C are believed to be completed in the Jefferson aquifer. Piezometric groundwater elevations range from 63.45 feet above msl (MW-20C) to 117.99 feet above msl (MW-23C). Groundwater is believed to flow to the south in this zone.
- MW-17C and MW-23D are believed to be completed in the Lynwood aquifer. Groundwater is believed to flow to the south-southwest.

6.2 Chemical Results

Trends in the lateral and vertical extent of COCs are discussed in the following section.

6.2.1 COCs

The following constituents were detected at concentrations exceeding published or proposed regulatory levels:

- VOCs: 1,1-DCA, 1,1-DCE, 1,2-DCA, cis-1,2 DCE, trans-1,2 DCE, chloroform, PCE, TCE, Freon 11
- Perchlorate and 1,4-dioxane
- Dissolved Metals: Manganese
- Inorganics: TDS and sulfate

A brief discussion of these chemicals and their trends as detected in the wells installed during this investigation follows.

6.2.2 VOCs

The core of the VOC plume appears to extend southwest through wells MW-14, MW-15, MW-23 and MW-17, decreasing toward MW-20. VOC concentration trends discussed by hydraulic units follow.

- In the wells presumed to be completed in the Gaspar aquifer (MW-12 through MW-15), concentrations of PCE, TCE, cis-1,2 DCE, Freon 11, Freon 113, and chloroform increase, in general, from northeast to southwest (cross-gradient to groundwater flow). Well MW-13B. exhibited the lowest VOC concentrations while well MW-15 exhibited the highest. The presence of elevated VOC concentrations in well MW-12 (upgradient of well MW-13, and of the former Omega Chemical facility) suggests an source near or upgradient to well MW-12.
- In the wells presumed to be completed in the Hollydale aquifer, concentrations increase to the southwest (with groundwater flow) from MW-17, then decrease towards well MW-20. The lateral extent of the plume in this aquifer is defined to the west and east by wells MW-16, MW-22, and MW-18.

- VOCs in wells presumed to have been completed in the Jefferson and Lynwood aquifers follow a similar trend as those in the Hollydale.
- The vertical distribution of VOCs in the triple-nested wells (MW-16, MW-17, MW-18, MW-20, and MW-23) suggests the Hollydale aquifer is the more significantly impacted. VOC concentrations decrease with depth. With the exception of well MW-17, concentrations decrease to below MCLs in the Jefferson and Lynwood aquifers. In well MW-17, TCE exceeds MCLs in the Lynwood aquifer.

6.2.3 Perchlorate and 1,4-Dioxane

As previously mentioned, concentrations of perchlorate were identified in excess of the California DHS proposed MCL (6 µg/L) in a number of samples. In addition, samples with concentrations of 1,4-dioxane in excess of the California DHS Advisory Action Level (3 µg/L) were also identified.

Perchlorate, in excess of the proposed MCL, was identified in the following wells and in the following presumed hydraulic units:

Gage: (MW-16A). Perchlorate concentrations increased to the southwest (with groundwater flow) from 4.19 µg/L (below MCLs) in MW-15 to 6.62 µg/L (above MCLs) in MW-16A. Well MW-15 is presumed to be completed in the Gaspar aquifer while MW-16A in the Gage.

Hollydale: Perchlorate concentrations exceeded the proposed MCL in wells MW-17A, MW-18A, and MW-18B. Wells MW-18A and MW-18B are not directly upgradient of well MW-17A. Separate sources for perchlorate are therefore likely to exist somewhere between MW-23 and MW-17, and upgradient of well MW-18. At each location (MW-17 and MW-18) perchlorate concentrations decrease with depth, attenuating to concentrations below the proposed MCLs in wells MW-17B and MW-18C. Perchlorate concentrations further decrease in well MW-17C.

The compound 1,4-dioxane was identified in the following wells and in the following presumed hydraulic units:

Gaspar and Gage: Concentrations of 1,4-dioxane exceed advisory action levels in wells MW-14, MW-15, and MW-20A. Increases in concentrations of 1,4 Dioxane between wells MW-14 and MW-15 (from 6.6 µg/L to 58 µg/L, respectively) suggests a point source somewhere between these wells. A separate point source is likely to be found just upgradient of well MW-20A, as evidenced by an increase in 1,4 Dioxane concentrations between MW-17A and MW-20A.

Hollydale: Concentrations of 1,4-dioxane exceed advisory action levels in wells MW-17A and MW-20B. Concentrations of 1,4-dioxane increase to the southwest (with groundwater flow) from not detected in well MW-23B to 64 µg/L in well MW-17A, decreasing to 4.1 µg/L in well MW-20B. This suggests a point source somewhere between wells MW-23 and MW-17. This point source is likely different from that discussed below.

Jefferson: Concentrations of 1,4-dioxane exceed the advisory action level only in well MW-23C (36 µg/L). Concentrations of 1,4-dioxane in the shallower well MW-23B, presumed to be completed in the Hollydale aquifer) and in the deeper well, MW-23D, presumed to be completed in the Lynwood aquifer, were not detected. This suggests a point source upgradient of well MW-23, that has impacted the Gage, Hollydale, and Jefferson aquifers.

The vertical distribution of 1,4-dioxane, as observed in the triple-nested wells, indicate the Hollydale and Jefferson aquifers may be more significantly impacted. Concentrations decrease to below MCLs in the deeper Lynwood aquifer.

6.2.4 Inorganics

Concentrations of manganese, TDS and sulfate were found to exceed their respective regulatory limits.

- Manganese concentrations ranged from 0.53 to 2,190 µg/L. The secondary MCL for Manganese is 50 µg/L. A primary MCL does not exist. The California Notification Level for manganese is 500 µg/L. Manganese concentrations exceeding the secondary MCL were detected in (presumed) Gage aquifer wells MW-12, MW-14, MW-19; in (presumed) Hollydale aquifer wells MW-17A and MW-22; and in (presumed) Jefferson aquifer wells MW-16C and MW-23C.
- TDS ranged from 430 to 2,970 mg/L. The secondary MCL for TDS is 500 mg/L with an upper limit of 1,000 mg/L. A primary MCL does not exist. TDS exceeded its upper limit in nearly all the wells except MW-16C, MW-17C, MW-18C, and MW-20C.
- Sulfate concentrations ranged from 66 to 1,350 mg/L. The secondary MCL for sulfate is 250 mg/L with an upper limit of 500 mg/L. Concentrations of sulfate exceeded upper limits in wells MW-16A, MW-18A, MW-18B and MW-13B. No significant patterns or trends were observed.

7. Conclusions

OSVOG has completed implementation of the scope of work associated with the First Amended UAO. OSVOG prepared a RIWP, HASP, FSP and QAPP. Consistent with the EPA approved FSP, 23 groundwater monitoring wells and one groundwater extraction well were installed and developed. Monitoring wells exhibiting adequate flow were equipped with dedicated sampling pumps, and groundwater sampling was conducted. Conclusions based on the findings of this document follow.

Stratigraphic units believed to have been encountered during drilling activities included the Bellflower aquiclude, the Gaspar, Gage, Artesian, Hollydale, Jefferson, and Lynwood aquifers. This information was derived from a comparison of materials encountered during drilling activities, and those published in Department of Water Resources Bulletin 104 (DWR 1961). Further details regarding materials encountered during drilling are detailed in the project well logs contained herein.

Chemical results of the July 2006 groundwater monitoring event indicate the following:

- Groundwater sampling results indicate the presence of VOCs at many locations. Two of the primary VOCs of concern are PCE and TCE.
 - Concentrations of PCE above the MCL were identified in MW-12, MW-14, MW-15, MW-17A, MW-17B, MW-18A, MW-20A, MW-20B, MW-23B, and MW-23C.
 - Concentrations of TCE above the MCL were identified in MW-12, MW-14, MW-15, MW-16B, MW-17A, MW-17B, MW-17C, MW-20A, MW-20B, MW-23B, and MW-23C.
 - TCE and PCE were not identified at levels above their respective MCLs in MW-13B, MW-16A, MW-16C, MW-18B, MW-18C, MW-19, MW-20C, MW-21, MW-22 and MW-23D.
 - Well MW-13A did not contain adequate water for sampling. Therefore, no VOC results are available.
- Sample results from wells MW-18, MW-19, MW-21, and MW-22 further define the lateral extent of the VOC plume.
- Sample results from wells MW-13B, MW-16C, MW-18C, MW-20C, MW-21 and MW-23D have provided additional data defining the vertical extent of VOC impacts.

- The downgradient lateral extent of the VOC plume attributed to the Omega site as depicted by EPA's subcontractor (Weston, 2003) appears to be commingled with VOC impacts from other downgradient sources (CH2M Hill, 10/5/2005).
- Perchlorate was identified in most of the wells that were sampled (not found in MW-20C) at concentrations ranging from 1.11 to 8.19 µg/L. The State of California has a proposed MCL of 6 µg/L for perchlorate. The distribution of this compound indicates that there are likely sources other than the Omega facility.
- The compound 1,4-dioxane was identified in approximately half of the wells that were sampled at concentrations ranging from 0.96 to 65 µg/L. California DHS has issued an advisory action level of 3 µg/L. This concentration was exceeded in wells MW-14, MW-15, MW-17A, MW-20A and MW-20B. The distribution of this compound indicates that there are likely sources other than the Omega facility.
- The distribution of contaminants identified during this investigation is not consistent with a single source at the former Omega Chemical site. Overall, sample results indicate a commingled, regional groundwater plume originating from multiple sources.

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ARCADIS

Tables

ARCADIS

Table 1. Summary of Well Construction
Project Completion Report - Well Installation and Groundwater Monitoring
Omega Chemical Operable Unit 2, Whittier, California

Well ID	Lat	Long	Depth to Fmn Water	Depth to Water (ft)	Drilling Method	Total Casing Depth (ft bgs)	Borehole Diameter (inches)	Casing Diameter (inches)	Casing Material	Slot Size (inches)	Screened Interval		Filter Pack Material	Filter Pack Interval		Annular Seal	Annular Seal Interval	
											From	To		From	To		From	To
MW12	33.9719957	-118.0462302	~87	82.9	Sonic	102	6	2	SCH80 PVC	0.01	82	97	1C	80	102	95/5 slurry	1	80
MW13A	33.9698410	-118.0453368		Dry	Mud	71	10	2	SCH80 PVC	0.02	56	66	2/16	54	69	95/5 slurry Medium Chips	1 52	52 54
MW13B	33.9698410	-118.0453368	~124	81.85	Mud	138	10	2	SCH80 PVC	0.02	123	133	2/16	121	139	Medium Chips 1:1 Medium Chips	69 71 119	71 119 121
MW14	33.9675538	-118.0487301	~55	46.2	Sonic	80	6	2	SCH80 PVC	0.02	60	75	2/12	57	80	95/5 slurry Medium Chips	1 55	55 57
MW15	33.9628639	-118.0549556	~37.5	25.75	Sonic	75	6	2	SCH80 PVC	0.01	50	70	1C	48	75	95/5 slurry Medium Chips	1 46	46 48
MW16A	33.9574593	-118.0661432	~47	48.03	Mud	65	8.75	2	SCH80 PVC	0.02	45	60	2/12	43	60	95/5 slurry Medium Chips	1 40	40 43
MW16B	33.9574593	-118.0661432		48.9	Mud	121	8.75	2	SCH80 PVC	0.02	106	116	3	104	118	1:1 Medium Chips	65 102	102 104
MW16C	33.9574593	-118.0661432		50.78	Mud	169	8.75	2	SCH80 PVC	0.02	149	164	2/16	147	169	Medium Chips 1:1 Medium Chips	118 121 145	121 145 147
MW17A	33.9530399	-118.0685620		66.47*	Mud	76	8.75	2	SCH80 PVC	0.02	56	71	2/16	54	73	95/5 slurry Medium Chips	1 52	52 54
MW17B	33.9530399	-118.0685620	~95	65.95	Mud	109	8.75	2	SCH80 PVC	0.02	94	104	2/16	92	107	Medium Chips 1:1 Medium Chips	73 76 90	76 90 92
MW17C	33.9530399	-118.0685620		73.24	Mud	187	8.75	2	SCH80 PVC	0.02	172	182	2/16	170	190	Medium Chips 1:1 Medium Chips	107 109 168	109 168 170
MW18A	33.9546753	-118.0542282	~54	27.93	Mud	76	8.75	2	SCH80 PVC	0.02	56	71	2/16	54	76	95/5 slurry Medium Chips	1 52	52 54
MW18B	33.9546753	-118.0542282		27.88	Mud	105	8.75	2	SCH80 PVC	0.02	90	100	2/16	88	103	1:1 Medium Chips	76 86	86 88
MW18C	33.9546753	-118.0542282		29.58	Mud	166	8.75	2	SCH80 PVC	0.02	146	161	2/16	144	164	Medium Chips 1:1 Medium Chips	103 105 142	105 142 144
MW19	33.9467442	-118.0639072	~55	69.38	Sonic	76	6	2	SCH80 PVC	0.02	56	71	2/16	54	76	95/5 slurry Medium Chips	1 51	51 54
MW20A	33.9452137	-118.0748847	~60	67.35	Mud	95	10	2	SCH80 PVC	0.02	75	90	2/12	73	87	95/5 slurry Medium Chips	1 70	70 73
MW20B	33.9452137	-118.0748847	~60	67.69	Mud	137	10	2	SCH80 PVC	0.02	122	132	2/12	120	137	Medium Chips 1:1 Medium Chips	87 89 118	89 118 120
MW20C	33.9452137	-118.0748847	~60	77.9	Mud	195	10	2	SCH80 PVC	0.02	180	190	2/12	178	196	Medium Chips 1:1 Medium Chips	132 134 176	134 176 178
MW21	33.9478069	-118.0797607	~65	49.86	Sonic	84	6	2	SCH80 PVC	0.02	64	79	2/16	61	83	95/5 slurry Medium Chips	1 59	59 61
MW22	33.9522296	-118.0771876	~60	61.81	Sonic	94	6	2	SCH80 PVC	0.02	74	89	2/16	71	94	95/5 slurry Medium Chips	1 68	68 71
MW23B	33.9611151	-118.0584936	~37	29.5	Mud	102	10	2	SCH80 PVC	0.02	87	97	2/16	86	99	95/5 slurry Transition Sand	1 85	85 86
MW23C	33.9611151	-118.0584936		32.35	Mud	165	10	2	SCH80 PVC	0.02	145	160	2/16	143	162	Medium Chips 1:1 Transition Sand	99 102 142	102 142 143
MW23D	33.9611151	-118.0584936		33.15	Mud	190	10	2	SCH80 PVC	0.02	175	185	2/16	173	190	Medium Chips 1:1 Transition Sand	161 164 171	164 171 173
EW-1**	33.9621008	-118.0604647			Mud	80	8.75	4	SCH80 PVC	0.02	65	75	2/12	63	78	95/5 slurry Medium Chips	1 60	60 63

Notes:
95/5 95% portland cement, 5% benseal bentonite powder
1:1 Bentonite crumble/#3 Sand Mix (1:1 ratio)
** Pump not to be installed in this well

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Table 2. Water Level Measurements June 22, 2006
Project Completion Report - Well Installation and Groundwater Monitoring
Omega Chemical Operable Unit 2, Whittier, California

Well ID	TOC Elev	DTW (btoc)	Depth to Sediment (btoc)	Measured TD (btoc)	Constructed TD (bgs)	Screen Interval	Estimated Thickness of Sediment (ft) ¹	Head Water (ft) ²	Groundwater Elevation (ft msl) ³
MW-12	220.87	85.44	102.18	102.18	102	82-97	0	16.74	135.43
MW-13A*	206.02	69.36	72.2	72.2	71	56-66	0	2.84	136.66
MW-13B	205.88	81.75	138.4	138.4	138	123-133	0	56.65	124.13
MW-14	172.63	46.2	79.91	79.91	80	60-75	0	33.71	126.43
MW-15	148.28	24.57	74.95	74.95	75	50-70	0	50.38	123.71
MW-16A	153.19	46.07	65.93	65.93	65	45-60	0	19.86	107.12
MW-16B*	153.26	46.88	117.85	120.19	121	106-116	2.34	70.97	106.38
MW-16C	153.26	49.17	169.7	169.7	169	149-164	0	120.53	104.09
MW-17A	159.03	65.03	75.65	75.67	76	56-71	0.02	10.62	94.00
MW-17B	158.90	64.07	109.3	109.7	109	94-104	0.4	45.23	94.83
MW-17C	159.00	73.54	187.15	187.15	187	172-182	0	113.61	85.46
MW-18A	143.73	26.97	75.95	75.95	76	56-71	0	48.98	116.76
MW-18B	143.83	26.95	105.47	105.47	105	90-100	0	78.52	116.88
MW-18C	143.83	28.94	166.6	166.6	166	146-161	0	137.66	114.89
MW-19	158.73	69.38	74.8	74.8	76	56-71	0	5.42	89.35
MW-20A	141.31	67.35	94.7	94.7	85	75-90	0	27.35	73.96
MW-20B	141.32	67.69	137.7	137.7	137	122-132	0	70.01	73.63
MW-20C	141.35	77.9	195.2	195.2	195	180-190	0	117.3	63.45
MW-21	128.81	49.86	84.8	84.8	84	64-79	0	34.94	78.95
MW-22	150.82	61.81	93.83	93.83	94	74-89	0	32.02	89.01
MW-23B	149.06	28.33	101.4	101.6	102	87-97	0.2	73.07	120.73
MW-23C	149.07	31.08	164.3	164.55	165	145-160	0.25	133.22	117.99
MW-23D	148.04	31.85	189.8	189.8	190	175-185	0	157.95	116.19

Notes:

Constructed TD based on TD reported on boring logs.

Measured TD - water level probe repeatedly oscillated until no change in measured depth.

Note: MW16B redeveloped 7/5/06. TD after development was 119.90'.

¹ Measured TD - Depth to Sediment

² Measured TD-DTW

³ Measured TOC-DTW

TOC top of casing

btoc below top of casing

bgs below ground surface

ft feet

DTW depth to water

TD total depth

msl relative to mean sea level. If >0, then above sea level.

* Water measured likely residual from attempts at well development.

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Table 3. Sample Identification and Tracking Log - Depth Specific Water Samples for VOCs
Project Completion Report - Well Installation and Groundwater Monitoring
Omega Chemical Operable Unit 2, Whittier, California

Operable Unit	Well Location	Sample Medium	Sample Type (0 thru 6)	Sequential Sample No.	Sample Date	Sample Time	Sample Depth (ft bgs)	Laboratory Analyses Requested		Turn Around Time	Lab Order No.	Date Samples Analyzed	Holding Time (days)	Quality Control
								Date Submitted to Lab	8260B					
OC2	PMW12	W	4	1	8/8/2005	9:15		8/9/2005	x	7 days	78030	8/11/2005	3	OK
OC2	PMW12	W	2	2	8/8/2005	9:18		8/9/2005	x	7 days	78030	8/11/2005	3	OK
OC2	PMW12	W	0	3	8/9/2005	8:05	102	8/9/2005	x	24 hours	78030	8/9/2005	0	OK
OC2	PMW12	W	1	4	8/9/2005	8:09		8/9/2005	x	7 days	78030	8/13/2005	4	OK
OC2	PMW12	W	3	5	8/9/2005	9:05		8/9/2005	x	7 days	78030	8/11/2005	2	OK
OC2	PMW13	W	4	1	6/30/2005	7:43		7/1/2005	x	7 days	77476	7/11/2005	11	OK
OC2	PMW13	W	2	3	7/1/2005	7:00		7/1/2005	x	7 days	77476	7/11/2005	10	OK
OC2	PMW13	W	0	4	7/1/2005	7:15	127	7/1/2005	x	24 hours	77476	7/11/2005	10	OK
OC2	PMW13	W	1	5	7/1/2005	7:15	127	7/1/2005	x	7 days	77476	7/11/2005	10	OK
OC2	PMW13	W	3	6	7/1/2005	7:50		7/1/2005	x	7 days	77476	7/11/2005	10	OK
OC2	PMW14	W	4	1	5/5/2006	15:30		5/5/2006	x	7 days	84252	5/8/2006	3	
OC2	PMW14	W	2	2	5/5/2006	15:35		5/5/2006	x	7 days	84252	5/8/2006	3	
OC2	PMW14	W	0	3	5/5/2006	15:40	57	5/5/2006	x	24 hrs	84252	5/5-8/06	#VALUE!	
OC2	PMW14	W	3	4	5/5/2006	15:50		5/5/2006	x	7 days	84252	5/8/2006	3	
OC2	PMW14	W	4	5	5/6/2006	8:16		5/6/2006	x	7 days	84267	5/8/2006	2	
OC2	PMW14	W	0	6	5/6/2006	8:16	67	5/6/2006	x	24 hrs	84267	5/8/2006	2	
OC2	PMW14	W	0	7	5/6/2006	10:13	77	5/6/2006	x	24 hrs	84267	5/8/2006	2	
OC2	PMW15	W	4	1	8/10/2005	12:55		8/10/2005	x	7 days	78080	8/16/2005	6	OK
OC2	PMW15	W	2	2	8/10/2005	13:04		8/10/2005	x	7 days	78080	8/16/2005	6	OK
OC2	PMW15	W	0	3	8/10/2005	15:24	45	8/10/2005	x	24 hours	78080	8/11/2005	1	OK
OC2	PMW15	W	3	4	8/10/2005	15:45		8/10/2005	x	7 days	78080	8/17/2005	7	OK
OC2	PMW15	W	0	5	8/10/2005	17:10	50	8/10/2005	x	24 hours	78080	8/11/2005	1	OK
OC2	PMW15	W	4	6	8/11/2005	7:15		8/11/2005	x	7 days	78093	8/17/2005	6	OK
OC2	PMW15	W	0	7	8/11/2005	7:30	60	8/11/2005	x	24 hours	78093	8/11/2005	0	OK
OC2	PMW15	W	0	8	8/11/2005	9:25	72	8/11/2005	x	24 hours	78093	8/11/2005	0	OK
OC2	PMW16	W	4	1	5/31/2005	7:30		5/31/2005	x	7 days	76811	6/2/2005	2	OK
OC2	PMW16	W	2	2	5/31/2005	7:30		5/31/2005	x	7 days	76811	6/2/2005	2	OK
OC2	PMW16	W	3	3	5/31/2005	8:40		5/31/2005	x	7 days	76811	6/2/2005	2	OK
OC2	PMW16	W	0	4	5/31/2005	12:56	57	5/31/2005	x	24 hours	76811	6/2/2005	2	OK
OC2	PMW16	W	0	6	5/31/2005	14:30	62	5/31/2005	x	24 hours	76811	6/2/2005	2	OK

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Table 3. Sample Identification and Tracking Log - Depth Specific Water Samples for VOCs
Project Completion Report - Well Installation and Groundwater Monitoring
Omega Chemical Operable Unit 2, Whittier, California

Operable Unit	Well Location	Sample Medium	Sample Type (0 thru 6)	Sequential Sample No.	Sample Date	Sample Time	Sample Depth (ft bgs)	Laboratory Analyses Requested		Turn Around Time	Lab Order No.	Date Samples Analyzed	Holding Time (days)	Quality Control
								Date Submitted to Lab	8260B					
OC2	PMW16	W	0	7	5/31/2005	15:50	72	5/31/2005	x	24 hours	76811	6/2/2005	2	OK
OC2	PMW16	W	1	8	5/31/2005	15:50	72	5/31/2005	x	7 days	76811	6/2/2005	2	OK
OC2	PMW16	W	0	9	5/31/2005	17:35	82	5/31/2005	x	24 hours	76811	6/2/2005	2	OK
OC2	PMW16	W	0	10	6/1/2005	8:40	92	6/1/2005	x	24 hours	76842	6/2/2005	1	OK
OC2	PMW16	W	4	11	6/1/2005	8:40		6/1/2005	x	7 days	76842	6/2/2005	1	OK
OC2	PMW16	W	0	12	6/1/2005	14:40	123	6/1/2005	x	24 hours	76842	6/2/2005	1	OK
OC2	PMW16	W	4	13	6/2/2005	8:00		6/2/2005	x	7 days	76867	6/2/2005	0	OK
OC2	PMW16	W	0	14	6/2/2005	8:08	133	6/2/2005	x	24 hours	76867	6/3/2005	1	OK
OC2	PMW16	W	0	15	6/2/2005	9:40	142	6/2/2005	x	24 hours	76867	6/3/2005	1	OK
OC2	PMW16	W	0	16	6/2/2005	15:50	162	6/2/2005	x	24 hours	76867	6/3/2005	1	OK
OC2	PMW16	W	4	18	6/3/2005	7:00		6/3/2005	x	7 days	76910	6/3/2005	0	OK
OC2	PMW16	W	0	19	6/3/2005	7:15	172	6/3/2005	x	24 hours	76910	6/3/2005	0	OK
OC2	PMW17	W	4	1	6/21/2005	12:30		6/21/2005	x	7 days	77259	6/30/2005	9	OK
OC2	PMW17	W	2	2	6/21/2005	13:00		6/21/2005	x	7 days	77259	6/26/2005	5	OK
OC2	PMW17	W	3	3	6/21/2005	13:35		6/21/2005	x	7 days	77259	6/26/2005	5	OK
OC2	PMW17	W	0	4	6/21/2005	15:10	51.5	6/21/2005	x	24 hours	77259	6/23/2005	2	OK
OC2	PMW17	W	4	5	6/22/2005	8:15		6/23/2005	x	7 days	77320	6/27/2005	5	OK
OC2	PMW17	W	0	6	6/22/2005	14:00	97	6/23/2005	x	24 hours	77320	6/24/2005	2	OK
OC2	PMW17	W	1	7	6/22/2005	14:00		6/23/2005	x	7 days	77320	6/24/2005	2	OK
OC2	PMW17	W	0	8	6/23/2005	7:50	117	6/23/2005	x	24 hours	77320	6/24/2005	1	OK
OC2	PMW17	W	0	9	6/23/2005	14:33	147	6/23/2005	x	24 hours	77320	6/24/2005	1	OK
OC2	PMW17	W	4	11	6/24/2005	8:45		6/24/2005	x	7 days	77340	6/28/2005	4	OK
OC2	PMW17	W	0	12	6/24/2005	11:29	172	6/24/2005	x	24 hours	77340	6/24/2005	0	OK
OC2	PMW17	W	0	13	6/24/2005	13:55	182	6/24/2005	x	24 hours	77340	6/24/2005	0	OK
OC2	PMW17	W	4	14	6/27/2005	10:40		6/27/2005	x	7 days	77381	7/1/2005	4	OK
OC2	PMW17	W	0	15	6/27/2005	10:40	192	6/27/2005	x	24 hours	77381	7/1/2005	4	OK
OC2	PMW18	W	4	1	6/10/2005	7:45		6/10/2005	x	7 days	77039	6/10/2005	0	OK
OC2	PMW18	W	2	2	6/10/2005	7:50		6/10/2005	x	7 days	77039	6/10/2005	0	OK
OC2	PMW18	W	0	3	6/10/2005	15:20	52	6/10/2005	x	24 hours	77039	6/10/2005	0	OK
OC2	PMW18	W	1	4	6/10/2005	15:20	52	6/10/2005	x	7 days	77039	6/10/2005	0	OK
OC2	PMW18	W	4	5	6/13/2005	8:25		6/13/2005	x	7 days	77087	6/13/2005	0	OK

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Table 3. Sample Identification and Tracking Log - Depth Specific Water Samples for VOCs
Project Completion Report - Well Installation and Groundwater Monitoring
Omega Chemical Operable Unit 2, Whittier, California

Operable Unit	Well Location	Sample Medium	Sample Type (0 thru 6)	Sequential Sample No.	Sample Date	Sample Time	Sample Depth (ft bgs)	Laboratory Analyses Requested		Turn Around Time	Lab Order No.	Date Samples Analyzed	Holding Time (days)	Quality Control
								Date Submitted to Lab	8260B					
OC2	PMW18	W	0	6	6/13/2005	10:15	67	6/13/2005	x	24 hours	77087	6/14/2005	1	OK
OC2	PMW18	W	3	8	6/13/2005	10:35		6/13/2005	x	7 days	77087	6/14/2005	1	OK
OC2	PMW18	W	0	9	6/13/2005	12:25	77	6/13/2005	x	24 hours	77087	6/14/2005	1	OK
OC2	PMW18	W	0	10	6/13/2005	16:04	87	6/13/2005	x	24 hours	77087	6/14/2005	1	OK
OC2	PMW18	W	4	11	6/14/2005	7:30		6/15/2005	x	7 days	7111	6/15/2005	1	OK
OC2	PMW18	W	0	12	6/14/2005	7:40	97	6/15/2005	x	24 hours	7111	6/15/2005	1	OK
OC2	PMW18	W	0	14	6/14/2005	13:05	115	6/15/2005	x	24 hours	7111	6/15/2005	1	OK
OC2	PMW18	W	0	15	6/14/2005	15:30	128	6/15/2005	x	24 hours	7111	6/15/2005	1	OK
OC2	PMW18	W	4	17	6/15/2005	7:45		6/15/2005	x	7 days	77138	6/16/2005	1	OK
OC2	PMW18	W	3	19	6/15/2005	8:22		6/15/2005	x	7 days	77138	6/17/2005	2	OK
OC2	PMW18	W	2	20	6/15/2005	8:35		6/15/2005	x	7 days	77138	6/17/2005	2	OK
OC2	PMW18	W	0	21	6/15/2005	11:00	148	6/15/2005	x	24 hours	77138	6/16/2005	1	OK
OC2	PMW18	W	0	22	6/15/2005	13:50	158	6/15/2005	x	24 hours	77138	6/16/2005	1	OK
OC2	PMW18	W	4	23	6/16/2005	7:30		6/16/2005	x	7 days	77152	6/16/2005	0	OK
OC2	PMW18	W	0	24	6/16/2005	9:50	177	6/16/2005	x	24 hours	77152	6/16/2005	0	OK
OC2	PMW18	W	0	26	6/16/2005	12:50	187	6/16/2005	x	24 hours	77152	6/16/2005	0	OK
OC2	PMW19	W	4	1	5/2/2006	16:00		5/3/2006	x	7 days	84192	5/3/2006	1	
OC2	PMW19	W	2	2	5/2/2006	16:03		5/3/2006	x	7 days	84192	5/3/2006	1	
OC2	PMW19	W	0	3	5/2/2006	16:05	68	5/3/2006	x	24 hrs	84192	5/3/2006	1	
OC2	PMW19	W	3	4	5/2/2006	16:25		5/3/2006	x	7 days	84192	5/3/2006	1	
OC2	PMW20	W	0	1	5/18/2006	11:55	73	5/18/2006	x	24 hrs	84501	5/19/2006	1	
OC2	PMW20	W	1	2	5/18/2006	13:00	83	5/18/2006	x	7 days	84501	5/19/2006	1	
OC2	PMW20	W	0	3	5/18/2006	13:00	83	5/18/2006	x	24 hrs	84501	5/19/2006	1	
OC2	PMW20	W	4	4	5/18/2006	-		5/18/2006	x	7 days	84501	5/19/2006	1	
OC2	PMW20	W	0	5	5/18/2006	15:30	93	5/18/2006	x	24 hrs	84501	5/19/2006	1	
OC2	PMW20	W	0	6	5/18/2006	16:40	103	5/19/2006	x	24 hrs	84521	5/22/2006	4	
OC2	PMW20	W	4	7	5/19/2006	8:00		5/19/2006	x	7 days	84521	5/19/2006	0	
OC2	PMW20	W	0	8	5/19/2006	9:30	113	5/19/2006	x	24 hrs	84521	5/19/2006	0	
OC2	PMW20	W	2	9	5/19/2006	9:40		5/19/2006	x	7 days	84521	5/19/2006	0	
OC2	PMW20	W	3	10	5/19/2006	9:55		5/19/2006	x	7 days	84521	5/19/2006	0	
OC2	PMW20	W	0	11	5/19/2006	11:35	123	5/19/2006	x	24 hrs	84521	5/19/2006	0	

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Table 3. Sample Identification and Tracking Log - Depth Specific Water Samples for VOCs
Project Completion Report - Well Installation and Groundwater Monitoring
Omega Chemical Operable Unit 2, Whittier, California

Operable Unit	Well Location	Sample Medium	Sample Type (0 thru 6)	Sequential Sample No.	Sample Date	Sample Time	Sample Depth (ft bgs)	Laboratory Analyses Requested		Turn Around Time	Lab Order No.	Date Samples Analyzed	Holding Time (days)	Quality Control
								Date Submitted to Lab	8260B					
OC2	PMW20	W	0	12	5/19/2006	13:35	133	5/19/2006	x	24 hrs	84521	5/19/2006	0	
OC2	PMW20	W	4	13	5/19/2006	15:30		5/19/2006	x	7 days	84531	5/19/2006	0	
OC2	PMW20	W	0	14	5/19/2006	15:35	143	5/19/2006	x	24 hrs	84531	5/19/2006	0	
OC2	PMW20	W	4	15	5/21/2006	8:00		5/22/2006		7 days	84562	5/22/2006	1	
OC2	PMW20	W	0	16	5/21/2006	9:15	153	5/22/2006		24 hrs	84562	5/22/2006	1	
OC2	PMW20	W	1	17	5/21/2006	9:15	153	5/22/2006		24 hrs	84562	5/22/2006	1	
OC2	PMW20	W	0	18	5/21/2006	15:47	183	5/22/2006		24 hrs	84562	5/22/2006	1	
OC2	PMW21	W	4	1	5/1/2006	7:30		5/1/2006	x	7 days	84144	5/1/2006	0	
OC2	PMW21	W	2	2	5/1/2006	7:40		5/1/2006	x	7 days	84144	5/1/2006	0	
OC2	PMW21	W	0	3	5/1/2006	8:15	69	5/1/2006	x	24 hrs	84144	5/1/2006	0	
OC2	PMW21	W	3	4	5/1/2006	8:35		5/1/2006	x	7 days	84144	5/1/2006	0	
OC2	PMW21	W	0	5	5/1/2006	9:55	79	5/1/2006	x	24 hrs	84144	5/1/2006	0	
OC2	PMW22	W	3	1	4/25/2006	13:00		4/26/2006	x	7 days	84061	4/26/2006	1	
OC2	PMW22	W	4	2	4/25/2006			4/26/2006	x	7 days	84061	4/26/2006	1	
OC2	PMW22	W	2	3	4/25/2006	13:05		4/26/2006	x	7 days	84061	4/26/2006	1	
OC2	PMW22	W	0	4	4/26/2006	10:42	68	4/26/2006	x	24 hrs	84061	4/26/2006	0	
OC2	PMW22	W	1	5	4/26/2006	10:43	68	4/26/2006	x	24 hrs	84061	4/26/2006	0	
OC2	PMW22	W	0	6	4/26/2006	13:40	78	4/26/2006	x	24 hrs	84061	4/26/2006	0	
OC2	PMW22	W	0	7	4/26/2006	16:40	88	4/26/2006	x	24 hrs	84065	4/27/2006	1	
OC2	PMW22	W	4	8	4/26/2006	16:45		4/26/2006	x	7 days	84065	4/27/2006	1	
OC2	PMW23	W	3	1	5/16/2005	13:25		5/17/2005	x	7 days	76515	5/17/2005	1	OK
OC2	PMW23	W	4	2	5/16/2005	13:30		5/17/2005	x	7 days	76515	5/17/2005	1	OK
OC2	PMW23	W	0	3	5/16/2005	18:21	42	5/17/2005	x	24 hours	76515	5/17/2005	1	OK
OC2	PMW23	W	4	4	5/17/2005	7:30		5/17/2005	x	7 days	76527	5/18/2005	1	OK
OC2	PMW23	W	0	5	5/17/2005	13:20	52	5/17/2005	x	24 hours	76527	5/18/2005	1	OK
OC2	PMW23	W	0	7	5/17/2005	16:20	62	5/17/2005	x	24 hours	76527	5/18/2005	1	OK
OC2	PMW23	W	2	8	5/17/2005	16:25		5/17/2005	x	7 days	76527	5/18/2005	1	OK
OC2	PMW23	W	2	11	5/18/2005	7:20			x	7 days	76549	5/19/2005	1	OK
OC2	PMW23	W	4	12	5/18/2005	7:40			x	7 days	76549	5/19/2005	1	OK
OC2	PMW23	W	0	13	5/18/2005	13:05	82		x	24 hours	76549	5/19/2005	1	OK
OC2	PMW23	W	1	14	5/18/2005	13:05			x	7 days	76549	5/19/2005	1	OK

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Table 3. Sample Identification and Tracking Log - Depth Specific Water Samples for VOCs
Project Completion Report - Well Installation and Groundwater Monitoring
Omega Chemical Operable Unit 2, Whittier, California

Operable Unit	Well Location	Sample Medium	Sample Type (0 thru 6)	Sequential Sample No.	Sample Date	Sample Time	Sample Depth (ft bgs)	Laboratory Analyses Requested		Turn Around Time	Lab Order No.	Date Samples Analyzed	Holding Time (days)	Quality Control
								Date Submitted to Lab	8260B					
OC2	PMW23	W	0	16	5/18/2005	14:28	92		x	24 hours	76549	5/19/2005	1	OK
OC2	PMW23	W	0	21	5/19/2005	7:20	132	5/19/2005	x	24 hours	76580	5/19/2005	0	OK
OC2	PMW23	W	4	23	5/19/2005	7:40		5/19/2005	x	7 days	76580	5/19/2005	0	OK
OC2	PMW23	W	4	24	5/20/2005	8:00		5/20/2005	x	7 days	76607	5/21/2005	1	OK
OC2	PMW23	W	2	25	5/20/2005	8:05		5/20/2005	x	7 days	76607	5/21/2005	1	OK
OC2	PMW23	W	0	26	5/20/2005	11:32	142	5/20/2005	x	24 hours	76607	5/23/2005	3	OK
OC2	PMW23	W	3	28	5/20/2005	11:47		5/20/2005	x	7 days	76607	5/22/2005	2	OK
OC2	PMW23	W	0	29	5/20/2005	12:52	152	5/20/2005	x	24 hours	76607	5/23/2005	3	OK
OC2	PMW23	W	4	31	5/23/2005	8:00		5/23/2005	x	7 days	76632	5/23/2005	0	OK
OC2	PMW23	W	0	32	5/23/2005	8:45	162	5/23/2005	x	24 hours	76632	5/23/2005	0	OK
OC2	PMW23	W	0	34	5/23/2005	13:40	172	5/23/2005	x	24 hours	76649	5/24/2005	1	OK
OC2	PMW23	W	0	36	5/23/2005	16:40	182	5/23/2005	x	24 hours	76649	5/24/2005	1	OK
OC2	PMW23	W	1	37	5/23/2005	16:45	182	5/23/2005	x	7 days	76649	5/24/2005	1	OK
OC2	PMW23	W	4	38	5/23/2005	16:50		5/23/2005	x	7 days	76649	5/24/2005	1	OK
OC2	PMW23	W	4	39	5/24/2005	14:40		5/24/2005	x	7 days	76671	5/24/2005	0	OK
OC2	PMW23	W	0	40	5/24/2005	15:20	192	5/24/2005	x	24 hours	76671	5/24/2005	0	OK
OC2	PMW23	W	3	41	5/24/2005	15:30		5/24/2005	x	7 days	76671	5/24/2005	0	OK

Notes

Sample Medium - W - water

Sample Type :

- 0 Primary Sample
- 1 Duplicate Sample
- 2 Field Blank
- 3 Equipment Blank
- 4 Trip Blank

ft bgs - feet below ground surface

Table 4. Summary of Chemical Analyses for Depth Specification Samples
Project Completion Report - Well Installation Groundwater Monitoring Report
Omega Chemical Operable Unit 2, Whittier, California

Page 1 of 9

Table 4. Summary of Chemical Analyses for Depth Specification Samples
Project Completion Report - Well Installation Groundwater Monitoring Report
Omega Chemical Operable Unit 2, Whittier, California

G:\APROJECT\Omega Chemical\Reports\PCR-WIGWM\Table 4 - Summary of Analytical Results.xls Page 2 of 9

Table 4. Summary of Chemical Analyses for Depth Specification Samples
Project Completion Report - Well Installation Groundwater Monitoring Report
Omega Chemical Operable Unit 2, Whittier, California

[illegible]

G:\APROJECT\Omega Chemical\Reports\PCR-WIGWM\Table 4 - Summary of Analytical Results.xls Page 4 of 9

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Table 4. Summary of Chemical Analyses for Depth Specification Samples
Project Completion Report - Well Installation Groundwater Monitoring Report
Omega Chemical Operable Unit 2, Whittier, California

[illegible]

Table 4. Summary of Chemical Analyses for Depth Specification Samples
Project Completion Report - Well Installation Groundwater Monitoring Report
Omega Chemical Operable Unit 2, Whittier, California

Notes:
Concentrations in micrograms per liter (µg/L) unless otherwise noted.
ND Not Detected at concentrations above the indicated reporting limit (RL)
J Chemical detected at a concentration greater than the method detection limit (MDL), but less than the RL. Estimated concentration.
N/A Not applicable.

Table 4. Summary of Chemical Analyses for Depth Specification Samples
Project Completion Report - Well Installation Groundwater Monitoring Report
Omega Chemical Operable Unit 2, Whittier, California

Notes:
Concentrations in micrograms per liter (µg/L) unless otherwise noted.

ND	Not Detected at concentrations above the indicated reporting limit (RL)
J	Chemical detected at a concentration greater than the method detection limit (MDL), but less than the RL. Estimated concentration.
N/A	Not applicable.

Notes:
Concentrations in micrograms per liter (µg/L) unless otherwise noted.

ND	Not Detected at concentrations above the indicated reporting limit (RL)
J	Chemical detected at a concentration greater than the method detection limit (MDL), but less than the RL. Estimated concentration.
N/A	Not applicable.

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Table 5. Sample ID and Tracking Log - Baseline Groundwater Sampling
Project Completion Report - Well Installation and Groundwater Monitoring
Omega Chemical Operable Unit 2, Whittier, California

Sample ID	Date Collected	Date Received	Lab Order No.	VOCs	TOC	1,2,3-TCP	SVOCs	NDMA	1,4 Dioxane	Cr+6	Perchlorate	Total Dissolved TAL Metals	Anions	TDS	TKN	Total Cyanide	Extraction Date	Holding Time (Days)	Was Holding Time Met (Y/N)	Surrogate Recovery OK?
OC2-PMW12-0-1	7/6/2006	7/6/2006	06G019	x	x	x	x	x	x	x	x	x	x	x	x	x	7/11/2006	5	Y	
OC2-PMW13B-0-2	7/6/2006	7/6/2006	06G019	x	x	x	x	x	x	x	x	x	x	x	x	x	7/11/2006	5	Y	
OC2-PMW13B-1-3	7/6/2006	7/6/2006	06G019	x	x	x	x	x	x	x	x	x	x	x	x	x	7/11/2006	5	Y	
OC2-PMW14-0-12	7/7/2006	7/7/2006	06G027	x	x	x	x	x	x	x	x	x	x	x	x	x				
OC2-PMW15-0-17	7/10/2006	7/10/2006	06G039	x	x	x	x	x	x	x	x	x	x	x	x	x	7/14/2006	4	Y	Y
OC2-PMW15-1-20	7/10/2006	7/10/2006	06G039	x	x	x	x	x	x	x	x	x	x	x	x	x	7/13/2006	3	Y	Y
OC2-PMW15-5-21	7/10/2006	7/10/2006	06G039	x	x	x	x	x	x	x	x	x	x	x	x	x	7/13/2006	3	Y	Y
OC2-PMW16A-0-25	7/11/2006	7/11/2006	06G048	x	x	x	x	x	x	x	x	x	x	x	x	x				
OC2-PMW16B-0-26	7/11/2006	7/11/2006	06G048	x	x	x	x	x	x	x	x	x	x	x	x	x				
OC2-PMW16C-0-27	7/11/2006	7/11/2006	06G048	x	x	x	x	x	x	x	x	x	x	x	x	x				
OC2-PMW17A-0-37	7/11/2006																			
OC2-PMW17A-0-38	7/13/2006	7/13/2006	06G073				x		x			x			x	x				
OC2-PMW18A-0-22	7/10/2006	7/10/2006	06G039	x	x	x	x	x	x	x	x	x	x	x	x	x	7/14/2006	4	Y	Y
OC2-PMW18B-0-23	7/10/2006	7/10/2006	06G039	x	x	x	x	x	x	x	x	x	x	x	x	x	7/14/2006	4	Y	Y
OC2-PMW18C-0-24	7/10/2006	7/10/2006	06G039	x	x	x	x	x	x	x	x	x	x	x	x	x	7/15/2006	5	Y	Y
OC2-PMW19-0-34	7/12/2006																			
OC2-PMW19-0-37	7/13/2006	7/13/2006	06G073				x		x			x			x	x				
OC2-PMW20A-0-30	7/11/2006	7/11/2006	06G048	x	x	x	x	x	x	x	x	x	x	x	x	x				
OC2-PMW20B-0-31	7/11/2006	7/11/2006	06G048	x	x	x	x	x	x	x	x	x	x	x	x	x				
OC2-PMW20C-0-32	7/11/2006	7/11/2006	06G048	x	x	x	x	x	x	x	x	x	x	x	x	x				
OC2-PMW21-0-40	7/12/2006																			
OC2-PMW22-0-33	7/11/2006	7/11/2006	06G048	x	x	x	x	x	x	x	x	x	x	x	x	x				
OC2-PMW23B-0-13	7/7/2006	7/7/2006	06G027	x	x	x	x	x	x	x	x	x	x	x	x	x				
OC2-PMW23C-0-14	7/7/2006	7/7/2006	06G027	x	x	x	x	x	x	x	x	x	x	x	x	x				
OC2-PMW23C-1-15	7/7/2006	7/7/2006	06G027	x	x	x	x	x	x	x	x	x	x	x	x	x				
OC2-PMW23D-0-16	7/7/2006	7/7/2006	06G027	x	x	x	x	x	x	x	x	x	x	x	x	x				
TB-01-06-06	7/7/2006	7/7/2006	06G027	x																
TB-06-06-06	7/7/2006	7/7/2006	06G027	x																
OC2-00-W-4-5	7/6/2006	7/6/2006	06G019	x													7/11/2006	5	Y	
OC2-00-W-2-7	7/6/2006	7/6/2006	06G019	x													7/11/2006	5	Y	
OC2-00-W-4-8	7/6/2006	7/6/2006	06G019	x													7/11/2006	5	Y	
OC2-00-W-2-9	7/7/2006	7/7/2006	06G027	x																
OC2-00-W-4-10	7/7/2006	7/7/2006	06G027	x																
OC2-00-W-4-11	7/7/2006	7/7/2006	06G027	x																
OC2-00-W-4-18	7/10/2006	7/10/2006	06G039	x													7/14/2006	4	Y	Y
OC2-00-W-1-19	7/10/2006	7/10/2006	06G039	x													7/13/2006	3	Y	Y
OC2-00-W-2-28	7/11/2006	7/11/2006	06G048	x																
OC2-00-W-4-29	7/11/2006	7/11/2006	06G048	x																

Notes:
Samples for Total Dissolved Metals were filtered and preserved by the lab upon receipts.

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Table 6. Baseline Groundwater Sampling - June 2006: Volatile Organic Compounds (VOCs)
Project Completion Report - Well Installation and Groundwater Monitoring
Omega Chemical Operable Unit 2, Whittier, California

Sample ID	Date Collected	1,1,1-TCA	1,1,2-TCA	1,1-DCA	1,1-DCE	1,2-DCA	1,2-DCP	Benzene	Chloroform	c-1,2-DCE	t-1,2-DCE	Dibromochloro- methane	Dichloro- difluoromethane	PCE	Toluene	TCE	Trichloro- fluoromethane	FC-113	MTBE	Acetone	Bromoform
OC2-PMW12-0-1	7/6/06	<0.2	<0.2	<0.2	8.1	<0.2	<0.2	<0.2	0.27 J	<0.2	<0.2	0.53 J	<0.3	17	0.22 J	91 E	<0.2	<0.2	<0.2	<5	0.72
OC2-PMW12-0-1DL	7/6/06	<1	<1	<1	8.4	<1	<0.2	<1	<1	<1	<1	<1	<1.5	16	<1	91	<1	<1	<1	<25	<1.5
OC2-PMW13B-0-2	7/6/06	<0.2	<0.2	<0.2	<0.2	0.67	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	2.5	<0.2	0.26 J	<0.2	<0.2	0.6 J	<5	<0.3
OC2-PMW13B-1-3	7/6/06	<0.2	<0.2	<0.2	<0.2	0.59	<0.2	<0.2	<0.2	<0.2	<0.2	0.87 J	<0.3	2.4	<0.2	0.24 J	<0.2	<0.2	0.55 J	<5	2.1
OC2-PMW14-0-12	7/7/06	<0.2	<0.2	0.48 J	170 E	1.6	<0.2	<0.2	16	0.77	0.29 J	<0.2	0.5 J	230 E	<0.2	36	110 E	270 E	0.6 J	<5	<0.3
OC2-PMW14-0-12DL	7/7/06	<2	<2	<2	180	<2	<0.2	<2	18	<2	<2	<2	<3	230	<2	37	110	280	<2	<50	<3
OC2-PMW15-0-17	7/10/06	1.1	0.6	3.2	170 E	12	<0.2	0.34 J	210 E	3.8	1.4	<0.2	2.2	200 E	<0.2	260 E	140 E	450 E	3.1	<5	<0.3
OC2-PMW15-0-17DL	7/10/06	<20	<20	<20	1200	<20	<0.2	<20	230	<20	<20	<20	<20	1300	<20	290	540	1400	<20	<500	<30
OC2-PMW15-1-20	7/10/06	1.1	0.68	3.4	180 E	11	<0.2	0.34 J	210 E	3.8	1.5	<0.2	2.4	190 E	<0.2	260 E	140 E	360 E	3.2	<5	<0.3
OC2-PMW15-1-20DL	7/10/06	<20	<20	<20	1200	<20	<0.2	<20	230	<20	<20	<20	<20	1400	<20	290	570	1500	<20	<500	<30
OC2-PMW15-5-21	7/10/06	1	0.67	3.1	130 E	11	<0.2	0.34 J	210 E	3.7	1.4	<0.2	2.3	260 E	<0.2	260 E	110 E	320 E	2.9	<5	<0.3
OC2-PMW15-5-21DL	7/10/06	<20	<20	<20	1200	<20	<0.2	<20	240	<20	<20	<20	<20	1400	<20	300	550	1400	<20	<500	<30
OC2-PMW16A-0-25	7/11/06	<0.2	<0.2	1	2.5	<0.2	<0.2	1.1	6.6	4.2	<0.2	0.35 J	<0.3	3.5	<0.2	1.7	<0.2	0.33 J	<0.2	<5	<0.3
OC2-PMW16B-0-26	7/11/06	<0.2	<0.2	<0.2	0.35 J	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	2	<0.2	7.8	0.88 J	1.8	<0.2	<5	<0.3
OC2-PMW16C-0-27	7/11/06	<0.2	<0.2	<0.2	0.33 J	<0.2	<0.2	<0.2	0.8 J	0.42 J	<0.2	<0.2	<0.3	0.25 J	<0.2	1.5	<0.2	<0.2	<0.2	<5	<0.3
OC2-PMW17A-0-38	7/13/06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
OC2-PMW17A-0-37	7/11/06	62	0.7	160 E	180 E	13	<0.2	<0.2	1.9	300 E	1.8	<0.2	<0.2	540 E	<0.2	160 E	5.6	8	<0.2	<5	<0.3
OC2-PMW17A-0-37DL	7/11/06	60	<5	170	370	13	<5	<5	<5	290	<5	<5	<7.5	450	<5	150	9.7 J	9.3 J	<5	<120	<7.5
OC2-PMW17B-0-38	7/12/06	0.94	<0.2	1.4	39	0.41 J	<0.2	<0.2	1.3	6.5	<0.2	<0.2	<0.3	130 E	<0.2	160 E	33	70 E	<0.2	6.1 J	<0.3
OC2-PMW17B-0-38DL	7/12/06	<1	<1	1.4 J	39	<1	<1	<1	1.5 J	6.6	<1	<1	<1.5	130	<1	150	34	69	<1	<25	<1.5
OC2-PMW17C-0-39	7/12/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.27 J	<0.2	<0.2	<0.2	<0.3	1	<0.2	14	<0.2	<0.2	<0.2	<5	<0.3
OC2-PMW18A-0-22	7/10/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	5.6	<0.2	0.84	<0.2	<0.2	<0.2	11	<0.3
OC2-PMW18B-0-23	7/10/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	0.76	<0.2	0.75	<0.2	0.27 J	<0.2	5.4 J	<0.3
OC2-PMW18C-0-24	7/10/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<5	<0.3
OC2-PMW19-0-34	7/12/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.3	<0.2	<0.2	0.3 J	<0.2	<0.2	<0.2	<5	<0.3
OC2-PMW19-0-37	7/13/06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
OC2-PMW20A-0-30	7/11/06	<0.2	<0.2	2.3	11	0.43 J	0.72	<0.2	0.67 J	1.3	<0.2	<0.2	<0.3	31	<0.2	44	4.2	8.6	<0.2	<5	<0.3
OC2-PMW20B-0-31	7/11/06	<0.2	<0.2	1.5	5.9	1.2	0.32 J	<0.2	0.63 J	0.66	<0.2	<0.2	<0.3	18	<0.2	26	1.5	3.2	<0.2	<5	<0.3
OC2-PMW20C-0-32	7/11/06	<0.2	<0.2	<0.2	0.52	<0.2	<0.2	<0.2	<0.2	4.4	<0.2	<0.2	<0.3	<0.2	<0.2	2.2	<0.2	<0.2	<0.2	<5	<0.3
OC2-PMW21-0-40	7/12/06	0.95	<0.2	<0.2	0.59	<0.2	<0.2	<0.2	0.34 J	<0.2	<0.2	<0.2	<0.3	2.2	<0.2	0.29 J	<0.2	<0.2	<0.2	<5	<0.3
OC2-PMW22-0-33	7/11/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.87 J	<0.2	<0.2	<0.2	<0.3	3.2	<0.2	1.2	<0.2	<0.2	<0.2	<5	<0.3
OC2-PMW23B-0-13	7/7/06	<0.2	<0.2	<0.2	1.2	<0.2	<0.2	<0.2	0.42 J	1.2	<0.2	<0.2	<0.3	21	<0.2	16	<0.2	0.31 J	<0.2	<5	<0.3
OC2-PMW23C-0-14	7/7/06	0.47 J	0.52	2.1	190 E	9.3	<0.2	0.24 J	110 E	16	1.5	<0.2	0.65 J	260 E	<0.2	420 E	180 E	500 E	1.4	<5	<0.3
OC2-PMW23C-0-14DL	7/7/06	<10	<10	<10	420	<10	<0.2	<10	120	17 J	<10	<10	<15	580	<10	420	190	510	<10	<250	<15
OC2-PMW23C-1-15	7/7/06	0.47 J	0.48 J	2.1	160 E	9.3	<0.2	0.24 J	110 E	16	1.4	<0.2	0.69 J	330 E	<0.2	410 E	180 E	500 E	1.2	<5	<0.3
OC2-PMW23C-1-15DL	7/7/06	<10	<10	<10	420	<10	<0.2	<10	120	17 J	<10	<10	<15	580	<10	410	190	520	<10	<250	<15
OC2-PMW23D-0-16	7/7/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.2	<0.2	0.27 J	<0.2	<0.2	<0.2	<5	<0.3
TB-01-06-06	7/7/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<5	<0.3
TB-06-06-06	7/7/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<5	<0.3
OC2-00-W-1-19	7/10/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.31 J	<0.2	<0.2	<0.2	<0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<5	<0.3
OC2-00-W-2-28	7/11/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.34 J	<0.2	<0.2	<0.2	<0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<5	<0.3
OC2-00-W-2-7	7/6/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.32 J	<0.2	<0.2	<0.2	<0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<5	<0.3
OC2-00-W-2-9	7/7/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.31 J	<0.2	<0.2	<0.2	<0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<5	<0.3
OC2-00-W-4-10	7/7/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<5	<0.3
OC2-00-W-4-11	7/7/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<5	<0.3
OC2-00-W-4-18	7/10/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<5	<0.3
OC2-00-W-4-29	7/11/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.2	<0.2	<0.2	0.26 J	<0.2	<0.2	<5	<0.3
OC2-00-W-4-5	7/6/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<5	<0.3
OC2-00-W-4-8	7/6/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<5	<0.3
OC2-00-W-2-35	7/12/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.34 J	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<5	<0.3
OC2-00-W-4-36	7/12/06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<5	<0.3

Notes:
Concentrations in micrograms per liter (ug/L)
DL Diluted sample, presents a more accurate concentration of those analytes with E-flag in primary sample.
J Concentration above detection limit but below reporting limit - estimated concentration.
E Concentration exceeds highest concentration in calibration curve - estimated concentration.

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Table 7. Baseline Groundwater Sampling - June 2006: Semi-Volatile Organic Compounds (SVOCs)
Project Completion Report - Well Installation and Groundwater Monitoring
Omega Chemical Operable Unit 2, Whittier, California

Sample ID	Date Collected	SVOCs Method 8270C	Benzo(A) Pyrene 8270C SIM	Bis(2-Ethylhexyl) Phthalate 8270C SIM	Hexachloro- Benzene 8270C SIM	Pentachloro Phenol 8270C SIM	Total Organic Carbon* 415.1
OC2-PMW12-0-1	7/6/2006	ND	<0.094	1.7 J	<0.47	<0.47	1.44 J
OC2-PMW13B-0-2	7/6/2006	ND	<0.094	<0.94	<0.47	<0.47	0.686 J
OC2-PMW13B-1-3	7/6/2006	ND	<0.094	1.5 J	<0.47	<0.47	0.65 J
OC2-PMW14-0-12	7/7/2006	ND	<0.094	1.4 J	<0.47	<0.47	1.16 J
OC2-PMW15-0-17	7/10/2006	ND	<0.094	<0.94	<0.47	<0.47	0.95 J
OC2-PMW15-1-20	7/10/2006	ND	<0.094	3.6	<0.47	<0.47	0.909 J
OC2-PMW15-5-21	7/10/2006	ND	<0.094	1.2 J	<0.47	<0.47	1.01 J
OC2-PMW16A-0-25	7/11/2006	ND	<0.094	1.6 J	<0.47	<0.47	1.65 J
OC2-PMW16B-0-26	7/11/2006	ND	<0.094	4.2	<0.47	<0.47	0.526 J
OC2-PMW16C-0-27	7/11/2006	ND	<0.094	1.1 J	<0.47	<0.47	0.74 J
OC2-PMW17A-0-38	7/13/2006	ND	<0.094	3.3	<0.47	<0.47	---
OC2-PMW17A-0-37	7/11/2006	---	---	---	---	---	32
OC2-PMW17B-0-38	7/12/2006	ND	<0.094	1.4 J	<0.47	<0.47	0.733 J
OC2-PMW17C-0-39	7/12/2006	ND	<0.094	<0.94	<0.47	<0.47	0.596 J
OC2-PMW18A-0-22	7/10/2006	ND	<0.094	2 U	<0.47	<0.47	2.6
OC2-PMW18B-0-23	7/10/2006	ND	<0.094	2.1 U	<0.47	<0.47	0.974 J
OC2-PMW18C-0-24	7/10/2006	ND	<0.094	2.6	<0.47	<0.47	<0.5
OC2-PMW19-0-34	7/12/2006	---	---	---	---	---	2.72
OC2-PMW19-0-37	7/13/2006	ND	<0.094	4.2	<0.47	<0.47	---
OC2-PMW20A-0-30	7/11/2006	ND	<0.094	<0.94	<0.47	<0.47	0.613 J
OC2-PMW20B-0-31	7/11/2006	ND	<0.094	1.9 J	<0.47	<0.47	0.649 J
OC2-PMW20C-0-32	7/11/2006	ND	<0.094	1.4 J	<0.47	<0.47	0.592 J
OC2-PMW21-0-40	7/12/2006	ND	<0.094	2	<0.47	<0.47	0.769 J
OC2-PMW22-0-33	7/11/2006	ND	<0.094	1.1 J	<0.47	<0.47	0.599 J
OC2-PMW23B-0-13	7/7/2006	ND	<0.094	2	<0.47	<0.47	1.52 J
OC2-PMW23C-0-14	7/7/2006	ND	<0.094	1.6 J	<0.47	<0.47	1.67 J
OC2-PMW23C-1-15	7/7/2006	ND	<0.094	<0.94	<0.47	<0.47	1.53 J
OC2-PMW23D-0-16	7/7/2006	ND	<0.094	<0.94	<0.47	<0.47	0.64 J

Notes:

Concentrations in micrograms per liter (ug/L)

* Concentrations in milligrams per liter (mg/L)

U Indicates analyte tested for but not detected, or determined by QC review to be not detected.

J Indicates analyte was detected above the method detection limit but below the reported limit. Estimated value.

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Table 8. Baseline Groundwater Sampling - June 2006: 1,2,3-Trichloropropane, N-nitrosodimethylamine, Hexavalent Chromium, Perchlorate and 1,4-Dioxane
Project Completion Report - Well Installation and Groundwater Monitoring
Omega Chemical Operable Unit 2, Whittier, California

Sample ID	Date Collected	1,2,3-Trichloropropane 8260 SIM	N-nitrosodimethylamine 1625 Mod	Hexavalent Chromium 218.6	Perchlorate 314.0	1,4-Dioxane 8270 SIM
OC2-PMW12-0-1	7/6/06	<0.0025	0.00326	1.29	1.11 J	<0.94
OC2-PMW13B-0-2	7/6/06	<0.0025	<0.0020	3.6	2.72 J	<0.94
OC2-PMW13B-1-3	7/6/06	<0.0025	<0.0020	3.6	3.42 J	<0.94
OC2-PMW14-0-12	7/7/06	<0.0025	<0.0020	3.27	2.24 J	6.6
OC2-PMW15-0-17	7/10/06	<0.0025	0.00421	15.3	4.19 J	39
OC2-PMW15-1-20	7/10/06	<0.0025	0.00404	14.7	3.95 J	58
OC2-PMW15-5-21	7/10/06	<0.0025	0.00313	14.8	3.96 J	46
OC2-PMW16A-0-25	7/11/06	<0.0025	<0.0020	5.84	6.62	0.96 J
OC2-PMW16B-0-26	7/11/06	<0.0025	<0.0020	5.2	3.13 J	<0.94
OC2-PMW16C-0-27	7/11/06	<0.0025	<0.0020	1.65	2.26 J	<0.94
OC2-PMW17A-0-38	7/13/06	---	---	---	---	65
OC2-PMW17A-0-37	7/11/06	<0.0025	0.00668	<0.2	8.19	
OC2-PMW17B-0-38	7/12/06	<0.0025	<0.0002	17.5	4.31 J	2.2
OC2-PMW17C-0-39	7/12/06	<0.0025	<0.0002	3.91	1.79 J	<0.94
OC2-PMW18A-0-22	7/10/06	<0.0025	<0.0020	6.49	6.55	<0.94
OC2-PMW18B-0-23	7/10/06	<0.0025	<0.0020	7.08	6.21	<0.94
OC2-PMW18C-0-24	7/10/06	<0.0025	<0.0020	1.03	2.72 J	<0.94
OC2-PMW19-0-34	7/12/06	<0.0025	<0.0002	<0.2	1.28 J	
OC2-PMW19-0-37	7/13/06	---	---	---	---	<0.94
OC2-PMW20A-0-30	7/11/06	<0.0025	<0.0020	13.9	3.76 J	3.6
OC2-PMW20B-0-31	7/11/06	<0.0025	<0.0020	17.2	4.59 J	4.1
OC2-PMW20C-0-32	7/11/06	<0.0025	<0.0020	<0.1	<0.5	<0.94
OC2-PMW21-0-40	7/12/06	<0.0025	<0.0002	2.74	3.77 J	2.4
OC2-PMW22-0-33	7/11/06	<0.0025	<0.0020	2.93	3.51 J	2.1
OC2-PMW23B-0-13	7/7/06	<0.0025	<0.0020	15	4.05 J	<0.94
OC2-PMW23C-0-14	7/7/06	<0.0025	0.00451	1.93	3.56 J	31
OC2-PMW23C-1-15	7/7/06	<0.0025	0.00429	1.91	3.55 J	36
OC2-PMW23D-0-16	7/7/06	<0.0025	<0.0020	4.95	4.18 J	<0.94

Notes:

Concentrations in micrograms per liter (ug/L)

<#### Indicates less than indicated method detection limit

J Indicates analyte was detected above the method detection limit but below the reported limit.

--- Indicates the sample was not analyzed.

Table 9. Baseline Groundwater Sampling - June 2006: Dissolved TAL Metals
Project Completion Report - Well Installation and Groundwater Monitoring
Omega Chemical Operable Unit 2, Whittier, California

Sample ID	Date Collected	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Mercury (7470A)	Dissolved Silica (370.1)
OC2-PMW12-0-1	7/6/06	<200	0.282 J	2.9	28.1	<0.25	538	<0.5	129,000	1.15	0.367 J	3.38	<200	<0.5	42,500	170	115	6.8	5,790	3.03	<0.5	92,300	<0.5	3.94	25.1	<0.1	36.3
OC2-PMW13B-0-2	7/6/06	<200	<0.25	1.08	25.8	<0.25	443	<0.5	130,000	3.39	<0.25	2.84	<200	<0.5	69,800	7.35	41.4	3.06	2,670	7.62	<0.5	127,000	<0.5	5.43	29.5	<0.1	50.0
OC2-PMW13B-1-3	7/6/06	<200	<0.25	1.09	24.4	<0.25	437	<0.5	130,000	3.3	<0.25	1.93	<200	<0.5	69,800	1.45	41.1	0.784	2,640	7.59	<0.5	126,000	<0.5	5.6	9.71 J	<0.1	48.8
OC2-PMW14-0-12	7/7/06	<200	<0.25	1.28	47.2	<0.25	395	<0.5	169,000	3.22	0.528	0.974	<200	<0.5	52,400	97.6	12	1.05	3,050	5.02	<0.5	106,000	<0.5	5.29	5.22 J	<0.1	50.0
OC2-PMW15-0-17	7/10/06	<200	<0.25	1.89	50.7	<0.25	331	<0.5	194,000	12	0.43 J	1.58	<200	<0.5	52,700	0.604 J	2.43	0.356 J	4,250	4.53	<0.5	93,200	<0.5	4.78	5.03 J	<0.1	42.0
OC2-PMW15-1-20	7/10/06	<200	<0.25	1.82	51.6	<0.25	329	<0.5	192,000	11.9	0.446 J	1.14	<200	<0.5	53,000	<0.5	2.33	0.829	4,200	4.35	<0.5	92,700	<0.5	4.73	8.84 J	<0.1	40.4
OC2-PMW15-5-21	7/10/06	<200	<0.25	1.85	49.8	<0.25	331	<0.5	194,000	12	0.459 J	1.14	<200	<0.5	53,400	0.579 J	2.38	0.313 J	4,240	4.39	<0.5	94,000	<0.5	4.75	7.83 J	<0.1	43.2
OC2-PMW16A-0-25	7/11/06	<200	0.253 J	1.24	68.9	<0.25	584	<0.5	511,000	6.33	2.34	1.76	<200	<0.5	115,000	5.58	1.61 J	2.57	8,170	14.1	<0.5	276,000	<0.5	2.12	13.5	<0.1	24.2
OC2-PMW16B-0-26	7/11/06	<200	<0.25	1.22	25.6	<0.25	231	<0.5	188,000	5.63	0.458 J	2.13	<200	<0.5	53,300	0.546 J	3.04	<0.25	5,190	41.5	<0.5	104,000	<0.5	4.47	9.63 J	<0.1	22.9
OC2-PMW16C-0-27	7/11/06	<200	<0.25	1.69	56	<0.25	148	<0.5	152,000	1.82	0.525	1.31	<200	<0.5	41,900	70.9	4.03	0.575	4,630	22.4	<0.5	77,400	<0.5	3.73	7.69 J	<0.1	21.8
OC2-PMW17A-0-37	7/11/06																										
OC2-PMW17A-0-38	7/13/06	<200	0.577	4.01	99.5	<0.25	378	<0.5	142,000	4.2	3	6.7	<200	<0.5	41,400	2,190	12.9	5.99	6,410	6.16	<0.5	194,000	<0.5	5.07	35.5	<0.1	25.5
OC2-PMW17B-0-38	7/12/06	<200	<0.25	1.18	32.6	<0.25	285	<0.5	166,000	17.3	0.854	1.93	<200	<200	47,300	0.691 J	2.2	1.51	5,140	25	<0.5	95,300	<0.5	4.64	22	<0.1	27.1
OC2-PMW17C-0-39	7/12/06	<200	0.304 J	2.37	49.8	<0.25	81.8	<0.5	100,000	4.05	0.42 J	0.939	<200	<0.5	21,300	<0.5	4.33	0.578	4,040	20.7	<0.5	46,200	<0.5	5.14	13.4	<0.1	20.0
OC2-PMW18A-0-22	7/10/06	<200	0.406 J	1.52	32.7	<0.25	386	<0.5	258,000	5.59	0.622	2.57	<200	<0.5	76,300	0.532 J	3.26	0.434 J	8,900	27.9	<0.5	152,000	<0.5	3.99	7.44 J	<0.1	30.3
OC2-PMW18B-0-23	7/10/06	<200	<0.25	1.3	31.6	<0.25	302	<0.5	282,000	6.1	0.712	1.82	<200	<0.5	94,600	<0.5	3.28	0.375 J	6,530	57	<0.5	127,000	<0.5	4.41	9.01 J	<0.1	30.2
OC2-PMW18C-0-24	7/10/06	<200	<0.25	1.66	177	<0.25	78	<0.5	67,600	1.01	<0.25	0.652	<200	<0.5	24,300	3.22	4.94	<0.25	3,560	23.8	<0.5	40,400	<0.5	5.1	7.52 J	<0.1	22.6
OC2-PMW19-0-37	7/13/06	<200	0.382 J	1.56	15.6	<0.25	398	<0.5	188,000	0.36 J	1.94	1.76	<200	<0.5	57,600	1,100	35.3	4.82	6,880	<0.5	<0.5	159,000	<0.5	1.93	38.5	<0.1	25.6
OC2-PMW19-0-34	7/12/06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
OC2-PMW20A-0-30	7/11/06	<200	<0.25	0.907	38.7	<0.25	233	<0.5	175,000	13.7	0.488 J	1.69	<200	<0.5	42,100	5.84	1.2 J	0.589	5,170	12.3	<0.5	92,700	<0.5	3.34	9.66 J	<0.1	23.4
OC2-PMW20B-0-31	7/11/06	<200	<0.25	1.3	43.7	<0.25	242	<0.5	186,000	17.8	0.515	1.45	<200	<0.5	42,800	5.63	1.5 J	0.584	5,290	9.92	<0.5	93,200	<0.5	3.98	7.95 J	<0.1	22.2
OC2-PMW20C-0-32	7/11/06	<200	2.99	30	66.2	<0.25	122	<0.5	67,300	<0.25	0.316 J	0.723	<200	<0.5	15,400	151	3.12	1.04	5,130	<0.5	<0.5	88,000	<0.5	2.08	<5	<0.1	19.7
OC2-PMW21-0-40	7/12/06	<200	<0.25	1.23	36.5	<0.25	293	<0.5	123,000	3.13	0.647	1.42	<200	<0.5	27,800	7.42	1.96 J	1.46	4,870	6.98	<0.5	85,700	<0.5	3.12	13.3	<0.1	24.1
OC2-PMW22-0-33	7/11/06	<200	<0.25	0.831	52	<0.25	373	<0.5	137,000	3.06	0.77	1.01	<200	<0.5	31,800	122	2.77	1.55	4,720	8.51	<0.5	88,700	<0.5	1.7	6.25 J	<0.1	23.4
OC2-PMW23B-0-13	7/7/06	<200	<0.25	2.13	31.1	<0.25	316	<0.5	170,000	13.2	0.335 J	1.2	<200	<0.5	45,800	80.1	7.21	1.01	4,930	6.39	<0.5	126,000	<0.5	3.12	5.61 J	<0.1	31.5
OC2-PMW23C-0-14	7/7/06	<200	0.303 J	2.97	33.4	<0.25	344	<0.5	125,000	2.07	0.306 J	3.58	<200	<0.5	37,700	67.3	9.38	3.29	5,600	5.36	<0.5	165,000	<0.5	3.57	11.3	<0.1	32.3
OC2-PMW23C-1-15	7/7/06	<200	0.274 J	2.79	29.9	<0.25	325	<0.5	122,000	1.77	0.269 J	0.767	<200	<0.5	36,500	61.3	9	1.22	5,340	5.14	<0.5	159,000	<0.5	3.14	5.85 J	<0.1	32.7
OC2-PMW23D-0-16	7/7/06	<200	<0.25	1.1	37.1	<0.25	200	<0.5	217,000	5.07	0.449 J	0.523	<200	<0.5	65,800	0.753 J	3.09	0.49 J	4,800	74.5	<0.5	98,800	<0.5	3.69	5.89 J	<0.1	24.5

Notes:
Concentrations in micrograms per liter (ug/L)
Water samples filtered and preserved in Lab
<## Indicates analyte was not detected above the indicated method detection limit.
J Indicates analyte was detected above the method detection limit but below the reported limit.
— Indicates the sample was not analyzed.

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Table 10. Baseline Groundwater Sampling - June 2006: Anions, TDS, TKN and Total Cyanide
Project Completion Report - Well Installation and Groundwater Monitoring
Omega Chemical Operable Unit 2, Whittier, California

Sample ID	Date	TDS (Method 160.1)	Anions (Method 300)							Total Cyanide (Method 335.2)	TKN (Method 351.3)
			Bromide	Chloride	Fluoride	Nitrate-N	Nitrite-N	Ortho phosphate-P	Sulfate		
OC2-PMW12-0-1	7/6/06	840	0.686 J	112	0.41	4.62	0.0881 J	0.257 J	177	0.0057 J	0.639 J
OC2-PMW13B-0-2	7/6/06	1,260	0.79 J	122	0.666	8.34	<0.05	<0.25	452	0.0052 J	0.342 J
OC2-PMW13B-1-3	7/6/06	1,300	0.725 J	121	0.715	8.35	<0.05	<0.25	448	0.0069 J	0.185 J
OC2-PMW14-0-12	7/7/06	1400	0.688 J	64.8	0.313	10.2	<0.05	<0.25	287	<0.005	0.258 J
OC2-PMW15-0-17	7/10/06	1,090	0.948 J	78.4	0.301	9.32	<0.05	0.306 J	288	<0.005	0.137 J
OC2-PMW15-1-20	7/10/06	1,110	0.888 J	78.5	0.298	9.33	<0.05	0.282 J	289	<0.005	0.116 J
OC2-PMW15-5-21	7/10/06	1,070	0.945 J	78.1	0.3	9.29	<0.05	0.281 J	288	<0.005	0.317 J
OC2-PMW16A-0-25	7/11/06	2,970	3.27	362	0.232	9.58	<0.05	0.293 J	1,350	<0.005	
OC2-PMW16B-0-26	7/11/06	1,110	0.548 J	94.9	0.335	6.31	<0.05	<0.25	412	<0.005	
OC2-PMW16C-0-27	7/11/06	920	0.643 J	94.7	0.307	4.01	<0.05	<0.25	335	<0.005	
OC2-PMW17A-0-38	7/13/06	---	---	---	---	---	---	---	---	<0.005	0.593 J
OC2-PMW17A-0-37	7/11/06	1,270	0.869 J	88.6	0.301	5.19	<0.05	0.266 J	299		
OC2-PMW17B-0-38	7/12/06	1,030	0.601 J	75.1	0.268	10.3	<0.05	<0.25	332	<0.005	0.381 J
OC2-PMW17C-0-39	7/12/06	570	<0.1	38.5	0.327	4.3	<0.05	<0.25	180	<0.005	0.253 J
OC2-PMW18A-0-22	7/10/06	1,720	0.597 J	74.5	0.268	16	<0.05	<0.25	696	<0.005	0.0906 J
OC2-PMW18B-0-23	7/10/06	1,810	0.633 J	98.7 J	0.271	15.4	<0.05	<0.25	718	<0.005	0.224 J
OC2-PMW18C-0-24	7/10/06	430	0.368 J	76.2	0.42	4.63	<0.05	<0.25	66.3	<0.005	0.27 J
OC2-PMW19-0-34	7/12/06	1,260	1.08	112	0.257	0.205	<0.05	<0.25	313		
OC2-PMW19-0-37	7/13/06	---	---	---	---	---	---	---	---	<0.005	0.553 J
OC2-PMW20A-0-30	7/11/06	1,030	0.581 J	91.6	0.257	8.09	<0.05	<0.25	307	<0.005	
OC2-PMW20B-0-31	7/11/06	1,040	0.511 J	97.2	0.272	7.57	<0.05	<0.25	311	<0.005	
OC2-PMW20C-0-32	7/11/06	935	0.228 J	42	0.265	<0.05	<0.05	<0.25	133	<0.005	
OC2-PMW21-0-40	7/12/06	760	<0.1	76.9	0.261	6.73	<0.05	<0.25	149	<0.005	0.218 J
OC2-PMW22-0-33	7/11/06	845	0.416 J	100	0.231	7.12	<0.05	<0.25	192	<0.005	
OC2-PMW23B-0-13	7/7/06	1190	1.01	97.8	0.395	9.04	<0.05	<0.25	349	<0.005	0.42 J
OC2-PMW23C-0-14	7/7/06	1060	0.406 J	89.5	0.435	11	0.161	<0.25	252	<0.005	0.514 J
OC2-PMW23C-1-15	7/7/06	1030	0.421 J	90.2	0.448	11	0.16	<0.25	254	<0.005	0.55 J
OC2-PMW23D-0-16	7/7/06	1130	0.684 J	83.7	0.388	9.53	<0.05	<0.25	594	<0.005	0.201 J

Notes:

Concentrations in milligrams per liter (mg/L)

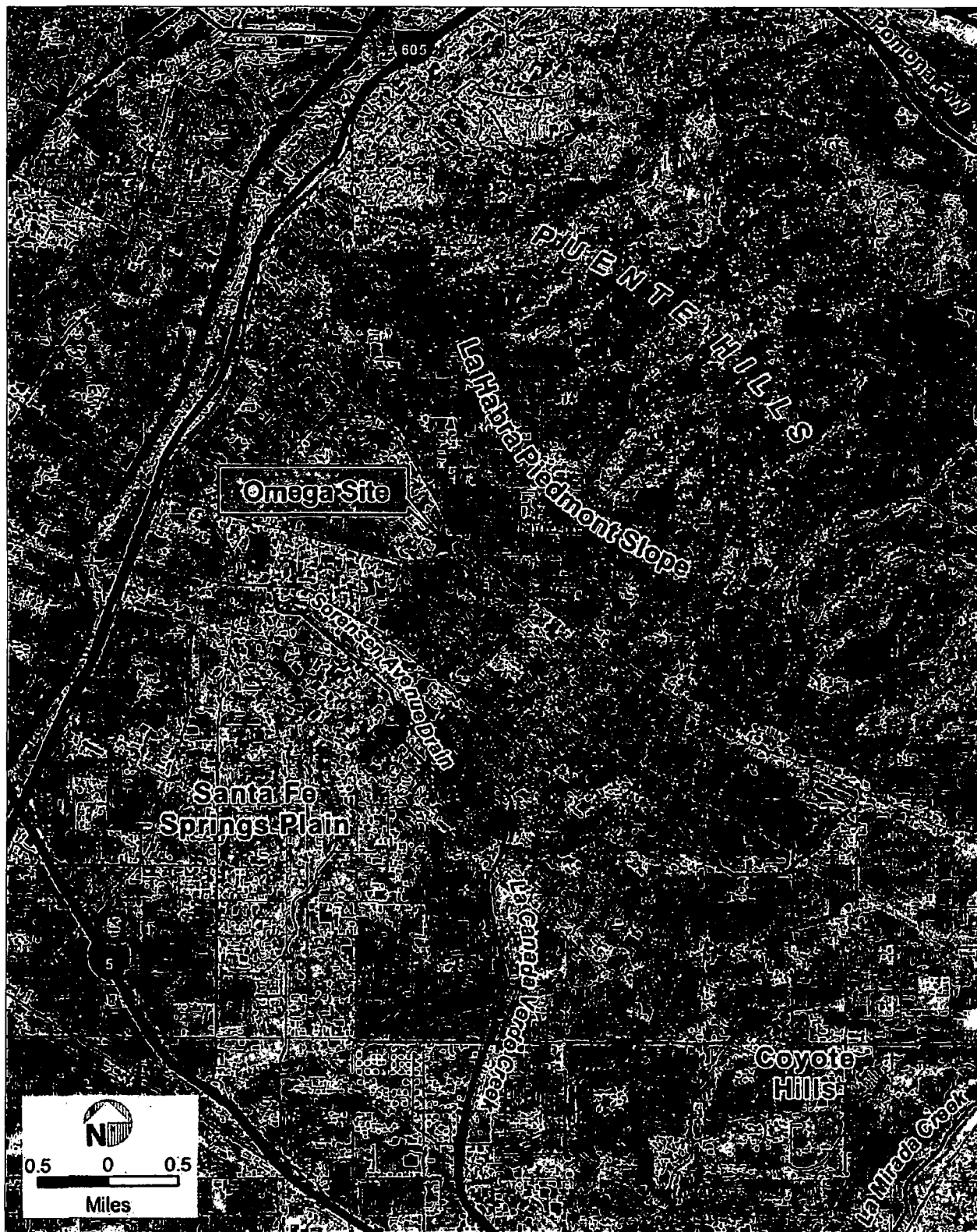
<### Indicates analyte was not detected above the indicated method detection limit.

J Indicates analyte was detected above the method detection limit but below the reported limit. Estimated value.

--- Indicates the sample was not analyzed.

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Figures



SOURCE: CHRM HILL, INC. FIGURE 1-1 SITE LOCATION MAP

<p>Area Manager B. HUNT</p> <p>Project Director J. JOHNSON</p> <p>Task Manager R. HALPERN</p> <p>Technical Reviewer R. HALPERN</p>	<p>ARCADIS</p> <p>Arcadis of Los Angeles 1400 N. Harbor Boulevard, Suite 700 Fullerton, CA 92635-4127 Tel: 714-278-0992 Fax: 714-278-0061 www.arcadis-us.com</p>	<p>SITE LOCATION MAP</p> <p>OMEGA CHEMICAL SUPERFUND SITE WHITTIER, CALIFORNIA</p>	<p>Project Number CA646.01.01</p> <p>Drawing Date 09/05/2006</p> <p>Figure 1</p>
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Layout: Tab: 11X17

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User Name: enelson

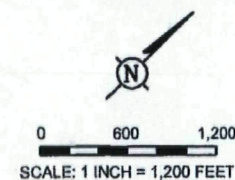


AERIAL PHOTO FROM AIRPHOTO, 2004

LEGEND

- OW#
MW# EXISTING GROUNDWATER MONITORING WELL LOCATION
- MW# GROUNDWATER MONITORING WELL LOCATION
- PRODUCTION WELL
- # WELL LOCATION AND PLUME UNITS FROM EPA 2004

— EPA ESTIMATED LATERAL EXTENT OF OU-2 BASED ON 2005 DATA



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WELL LOCATION MAP

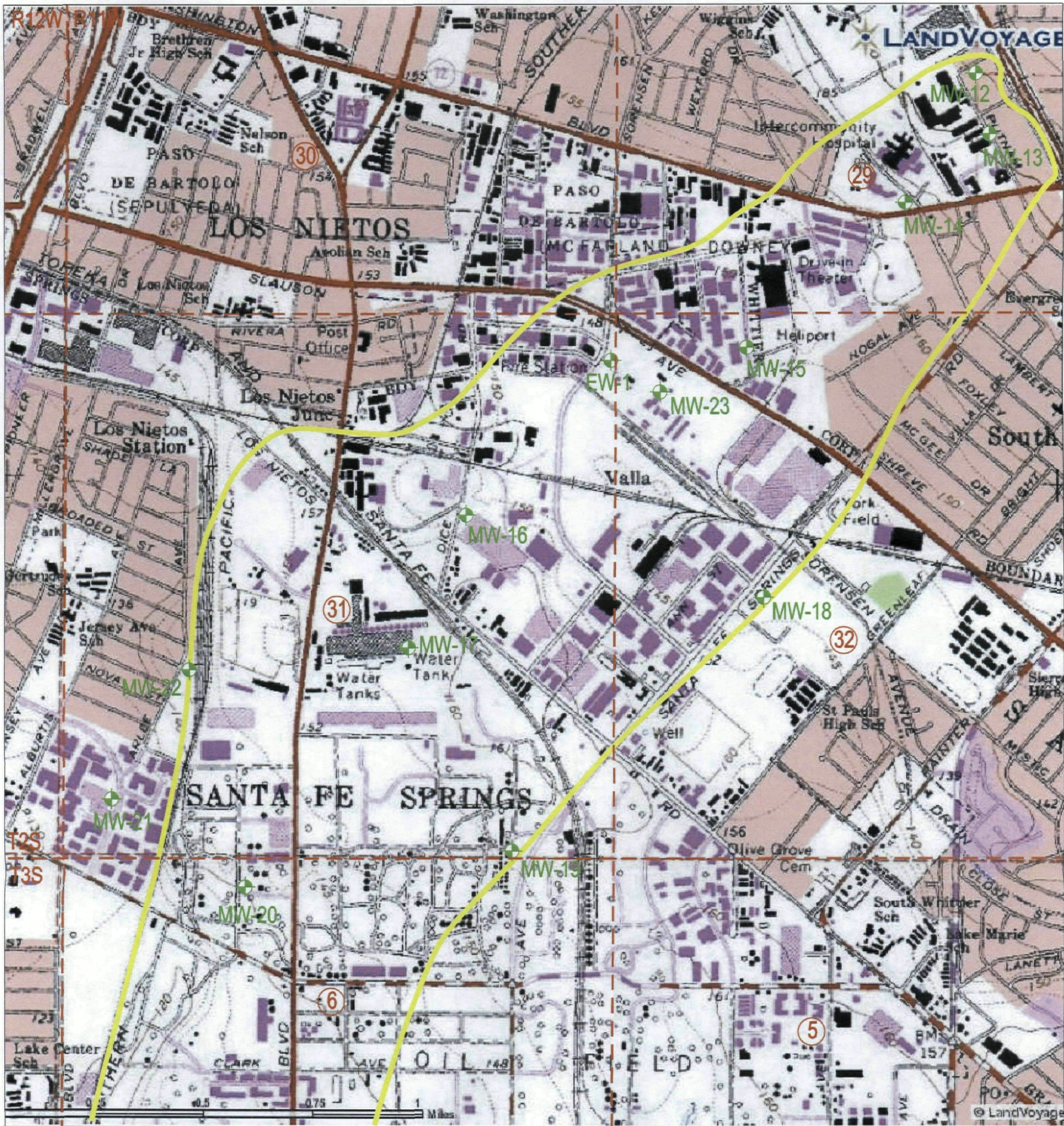
OMEGA CHEMICAL SUPERFUND SITE
WHITTIER, CALIFORNIA

Project Number
CA 646.01.03

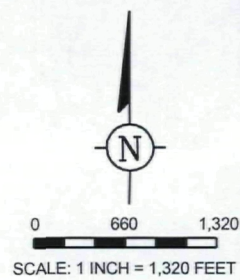
Drawing Date
09/06/2006

Figure

2



EPA ESTIMATED LATERAL EXTENT OF PLUME (2005)



SOURCE: USGS, 1964 WHITTIER QUADRANGLE MAP
TOPOGRAPHIC SERIES, PHOTOREVISED 1981

Ascd Version : R16.2s (LMS Tech) Date/Time : Tue, 05 Sep 2006 : 4:34pm
User Name : enelson
Current Plotstyle : ByColor
Layout Tab: 11X17
Path Name : G:\COMWORK\Omegamega Chemical\Drawings\03-topo map.dwg

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TOPOGRAPHIC MAP

OMEGA CHEMICAL SUPERFUND SITE
WHITTIER, CALIFORNIA

Project Number
CA 646.01.01

Drawing Date
09/05/2006

Figure

3

Current Plot Style : Bldwyr
Layout Tab: 8.3x11

Date/Time : Tue, 05 Sep 2006 - 4:33pm
Path Name : C:\COMMON\Omegamega Chemical\Drawings\04-Generalized Stratigraphic Column.dwg

Acad Version : R16.2a (LMS Tech)
User Name : enson

SYSTEM	SERIES	FORMATION	LITHOLOGY	AQUIFER AND AQUICLUDE	MAX. THICKNESS (FEET)
QUATERNARY	RECENT	ACTIVE DUNE SAND		SEMIPERCHED	60
		ALLUVIUM		BELLFLOWER AQUICLUDE	140
				GASPUR BALLONA	120 40
	UPPER PLEISTOCENE	OLDER DUNE SAND		SEMIPERCHED BELLFLOWER AQUICLUDE	200
		LAKESWOOD FORMATION		EXPOSITION ARTESIA	140
				GARDENA	160
				GAGE	160
		UNCONFORMITY			
	LOWER PLEISTOCENE	SAN		HOLLYDALE	100
				JEFFERSON	140
				LYNWOOD	200
		PEDRO		SILVERADO	500
		FORMATION		SUNNYSIDE	500
TERTIARY	UPPER PLIOCENE	LOCAL		UNCONFORMITY	
		PICO FORMATION		UNDIFFERENTIATED	

SOURCE: CH2M HILL, INC. FIGURE 2-1 GENERALIZED STATIGRAPHIC COLUMN

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GENERALIZED STATIGRAPHIC COLUMN
(BASED ON DATA FROM CDWR, 1961)

OMEGA CHEMICAL SUPERFUND SITE
WHITTIER, CALIFORNIA

Project Number CA646.01.01
Drawing Date 09/05/2006
Figure 4



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Appendix A

Weekly Status Reports

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending August 19, 2005

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW23, MW16, MW18, MW17, MW13, MW12 and MW15 have been completed.
- Wells MW23, MW16, MW18, MW17, MW13 and OPOG well OW8b have been surveyed.

Work Completed Last Week (Ending August 19, 2005)

No field activities were performed during the week ending August 19, 2005. Administrative work, including preparation of status reports and tabulation of field data were continued during this week.

Work To Be Completed Next Week (Ending August 26, 2005)

The following activities are expected to be completed by end of August 26, 2005:

- No field activities are planned. In a telephone conversation between Tom Perina of CH2M Hill and John Johnsen of ARCADIS on August 24, 2005, it was decided to keep well PMW14, at its current location of 12300 Washington Boulevard – Unit F.

Issues to be Resolved

OSVOG plans to coordinate installation of PEW-1, PMW-14, PMW19, PMW20, PMW21, and PMW22 with EPA. Currently there are no issues regarding the locations of PEW-1 and PMW-14, but OSVOG would like to meet with EPA representatives to further discuss the planned placement of PMW19, PMW20, PMW21, and PMW22.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending August 12, 2005

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW23, MW16, MW18, and MW17 have been completed.

Work Completed Last Week (Ending August 12, 2005)

Boreholes PMW12 and PMW25 were completed using the sonic rig.

PMW12 was advanced to approximately 110 feet, with water first encountered at approximately 87 feet bgs in a 2-foot-thick, tight, clayey sand unit. The bottom of this (5-foot) sample run was at 90 feet bgs, in a tight Clay unit. EPA's contractor, CH2M Hill's on-site observer agreed that an attempt to collect a water sample in the clay unit would not be fruitful. The next saturated unit was encountered at 101 feet bgs. A water sample was collected at 102 feet bgs in a Sand unit. After comparing the screened interval with MW13, OW-8B, and in consultation with CH2M Hill's on-site observer, it was decided to install this well to a total depth of 102 feet, with a screened interval of 82 to 97 feet bgs.

Suspected hydrologic units encountered at this location include the following:

Based on Literature (Bulletin 104)		Based on Observation	
Hydraulic Unit	Depth	Suspected Hydraulic Unit	Depth
Bellflower	60-110	Bellflower	13-101
Artesia	---	Artesia	---
Gage	---	Gage	---
Hollydale	---	Hollydale	---
Jefferson	220-240	Jefferson	101-110+
Lynwood	240-290	Beyond depth of well	

One depth-specific water sample was collected in PMW12 – at 102 feet bgs. Chemical results of this sample indicate the following analytes were detected:

Sample ID	Depth of Sample	PCE	TCE	1,1-DCE	Freon 11	Chloroform	Other
OC2-PMW12-W-0-03	102 ft	3.1	470	19	ND<0.5	0.67	Benzene: 0.55

Note: Concentrations in micrograms per liter (ug/L)

PMW15 was advanced to approximately 82 feet, with water encountered at approximately 38 feet bgs. Based on comparison of stratigraphy and well-completion of MW4A and MW5 (Weston, 2001), the vertical chemical profile, and in consultation with CH2M Hill, the well was completed with 2-inch diameter, schedule 80 PVC, with 0.01" slotted casing from 50 to 70 feet bgs. The sand pack chosen was #1C, due to fine sands in the saturated zone.

Suspected hydrologic units encountered at this location include the following:

Based on Literature (Bulletin 104)		Based on Observation	
Hydraulic Unit	Depth	Suspected Hydraulic Unit	Depth
Bellflower	0-10	Bellflower	0-38
Artesia	40-50	Artesia	38-75
Gage	70-100	Gage	80+
Hollydale	110-140	<i>Beyond depth of well</i>	---
Jefferson	180-200	<i>Beyond depth of well</i>	---
Lynwood	275-350	<i>Beyond depth of well</i>	---

Four depth-specific water samples were collected in PMW15. Chemical results of this sample indicate the following analytes were detected:

Sample ID	Depth of Sample	PCE	TCE	1,1-DCE	Freon 11	Chloroform	Other
OC2-PMW15-W-0-03	45 ft	57	8.3	9.4	3.8	1.8	ND<0.5
-0-05	50 ft	1000 E	400 E	860 E	430 E	170 E	1,1 DCA: 3.0 1,2 DCA: 12 c-1,2 DCE: 6.6 Freon 12: 2.1

Sample ID	Depth of Sample	PCE	TCE	1,1-DCE	Freon 11	Chloroform	Other
-0-07	60 ft	200 E	120 E	170	71	39	1,1 DCA: 0.85 1,2 DCA: 3.8 c-1,2 DCE: 1.9 Toluene: 1.4
-0-08	70 ft	940 E	240 E	870 E	580 E	130 E	1,1-DCA: 2.6 1,2-DCA: 7.7 c-1,2-DCE: 3.2 Freon 12: 3.4 t-1,2-DCE: 0.85

Note: Concentrations in micrograms per liter (ug/L)

E – Laboratory flag indicating detected concentration above calibration curve – estimated concentration.

Sonic drilling of PMW14 was put off pending discussion of location with OSVOG and EPA.

Work To Be Completed Next Week (Ending August 19, 2005)

The following activities are expected to be completed by end of next week:

- Development of wells MW12 and MW15.

Issues to be Resolved

Location of well PMW14: In a conversation with CH2M Hill and with Chris Lichens of EPA on Wednesday August 10, 2005, EPA expressed concern regarding the health & safety of residents of the Sunshine Apartment Complex on Sunshine Avenue, north of the current proposed location of PMW14. The concern results from the likely migration of VOCs in groundwater beneath the apartment complex. EPA wanted to install a groundwater monitoring well immediately up-gradient of the apartment complex. EPA suggested moving PMW14 to such a location. Ron Halpern of ARCADIS indicated to Mr. Lichens of EPA Region IX that the objective of PMW14 was to evaluate the continuum of the assumed core of the plume at a location that EPA has identified as downgradient of the Omega Chemical facility. The apartment complex is cross-gradient and sufficiently far enough away from the assumed core of the plume such that, if PMW14 was moved, it would not meet the original objective. Mr. Lichens agreed that PMW14 should remain at its current location. After reviewing the Weston plume maps in regards to the above, Mr. Kerang Sun of CH2M Hill suggested moving PMW14 further east, closer to its original proposed location. Mr. Halpern indicated that that location (in Washington Boulevard) was unsuitable due to numerous underground utilities. Mr. Sun suggested putting the well in a nearby hospital parking lot. The hospital parking lot would be a suitable location for PMW14, providing EPA could obtain the appropriate access agreements to help prevent further schedule slippage. OSVOG currently plans to install PMW14 in conjunction with installation of PMW19, PMW21 and PMW22 to cut avoid additional costly mobilizations.

Installation of PEW-1, PMW-14, PMW19, PMW20, PMW21, and PMW22 will be completed when issues relating to the locations of the monitoring wells have been resolved. Currently there

are no issues relating to the placement of PEW-1, but installation will be postponed to minimize mobilization costs.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending August 5, 2005

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW23, MW16, MW18, and MW17 have been completed.

Work Completed Last Week (Ending August 5, 2005)

Sonic drilling of PMW12 began on Wednesday July 27, 2005, but was terminated at a depth of 50 feet bgs due to a damaged sonic head. A replacement was ordered and was originally scheduled to be on-site by Monday, August 1. The equipment was not available until Thursday, August 4. Drilling was therefore initiated on the afternoon of Thursday, August 4.

CPT investigation activities near the southern portion of the site investigation area was initiated on August 5. The CPT rig was unable to penetrate to a depth where groundwater could be collected. Attempts were made at two locations (PMW-19 and PMW20) prior to the effort being called off.

Work To Be Completed Next Week (Ending August 12, 2005)

The following activities are expected to be completed by end of next week:

- Completion of wells PMW12 and PMW15.

Issues to be Resolved

EPA contacted OSVOG representatives and suggested relocation of PMW-14. This issue will be discussed further during the week starting August 15.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending July 29, 2005

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW23, MW16, MW18, and MW17 have been completed.
- Irrigation line repair at the Catellus property (Burke & Beasor – MW23)

Work Completed Last Week (Ending July 29, 2005)

Boreholes PMW12, PMW14 and PMW15 were cleared to 8 feet bgs using an air knife on Wednesday, July 27, 2005.

Sonic drilling of PMW12 began on Wednesday July 27, 2005, but was terminated at a depth of 50 feet bgs due to a damaged sonic head. A replacement has been ordered, and drilling was expected to resume Monday August 1st, but was later delayed by the driller until Friday August 5.

Work To Be Completed Next Week (Ending August 5, 2005)

The following activities are expected to be completed by end of next week:

- Re-initiation of Sonic drilling at well PMW12.
- Initiation of CPT investigation.
- Survey of wells completed to date.

Issues to be Resolved

No significant issues identified for this reporting period.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending July 22, 2005

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW23, MW16, MW18, and MW17 has been completed.
- Irrigation line repair at the Catellus property (Burke & Beasor – MW23)

Work Completed Last Week (Ending July 22, 2005)

Coordination of CPT borings in vicinity of PMW19, PMW20, PMW21 and PMW22 has been completed – CPTs will be performed Friday August 5 and Monday August 8.

Coordination of Sonic Drilling at PMW12, PMW14 and PMW15 has been completed. City excavation permits obtained. Borehole clearance and drilling activities will start July 27, 2005.

Work To Be Completed Next Week (Ending July 29, 2005)

The following activities are expected to be completed by end of next week:

- Borehole clearance for PMW12, PMW14 and PMW15.
- Installation of well PMW12.
- Induction logging and Gamma Ray logging of MW23D (Thursday 7/28/05).
- An updated project schedule will be submitted with the weekly report for Week ending July 29, 2004.



Issues to be Resolved

No significant issues identified for this reporting period.



WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending July 15, 2005

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW-13, MW-16, MW-17, MW-18, and MW23, have been completed.

Work Completed Last Week (Ending July 15, 2005)

Coordination activities took place between OSVOG representatives, EPA's contractor (CH2M Hill), and representatives from the City of Santa Fe Springs and the City's consultant (Waterstone Environmental) to arrange for the sampling of the wells in the area of the Oil Field Reclamation Project (OFRP). Late during the week, OSVOG was provided with a table of data that showed that data had been collected from remaining OFRP wells as recently as December of 2004. Based on this information, it has been determined that re-sampling the wells at this time would be of limited value. Therefore, plans to initiate well sampling during the week ending July 22, 2005 were cancelled.

Landscaping activities were undertaken to restore areas damaged during groundwater monitoring well installation activities.

Work To Be Completed Next Week (Ending July 22, 2005)

OSVOG will request bids from a limited number of firms with CPT capability and initiate planning for CPT work at or near the planned locations for PMW-20, PMW-21, and PMW-22. All proposed field activities will be coordinated with EPA's consultant CH2M Hill, and no field activities will take place prior to EPA's concurrence with the planned actions.

Note: Drilling activities are scheduled to begin on July 27, 2005. At that time the sonic drilling rig will be available, and will be mobilized to the site.

Issues to be Resolved

OSVOG will submit a revision to the sampling plan addendum that more accurately reflects the planned activities that will consist of a CPT rig drilling investigation at planned well locations PMW-20, PMW-21, and PMW-22.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending July 8, 2005

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW-13, MW-16, MW-17, MW-18, and MW23, have been completed.

Work Completed Last Week (Ending July 8, 2005)

Construction of well MW13 was completed on July 5, and well development took place on July 6.

The brief sampling addendum for the OFRP well sampling was submitted to EPA.

During the installation of MW-13 the following suspected hydraulic units were encountered:

Hydraulic Unit	Depth Range per Bulletin 104	Suspected Depth Range
Bellflower aquiclude	55-85 ft bgs	30-65 ft bgs
Artesia aquifer	Not present	Not encountered
Gage aquifer	Not present	Not encountered
Hollydale aquifer	Not present	Not encountered
Jefferson aquifer	185-205 ft bgs	118- 138+ ft bgs

During the drilling of MW-13, the subsurface conditions allowed for the collection of only one groundwater sample. The sample was collected from 127 feet bgs, and the sample result showed TCE at a concentration of 1.6 ug/l. No other constituents of concern were noted above the method detection limit.

The majority of waste water, drilling mud and soil has now been shipped from the various locations for proper disposal.

Work To Be Completed Next Week (Ending July 15, 2005)

OSVOG will await approval from EPA of the brief sampling plan addendum submitted by OSVOG to EPA detailing the planned procedures for collecting groundwater samples from the OFRP wells in the City of Santa Fe Springs. This effort is being undertaken to aid EPA and OSVOG in the decision of where to locate the wells planned for the southernmost investigation area.

OSVOG will finalize the access agreement with Catellus and initiate landscaping activities to repair damage caused during drilling activities.

Note: Drilling activities are now scheduled to begin the week of July 25, 2005. At that time the sonic drilling rig will be available, and will be mobilized to the site. During the week of July 18, 2005, based on EPA approval of the brief sampling plan addendum submitted the week of July 4, 2005, we intend to initiate sampling of the OFRP wells. This exercise is currently scheduled to begin on Tuesday, July 19, 2005.

Issues to be Resolved

OSVOG awaits approval of the brief sampling addendum that describes activities planned for sampling of the OFRP wells (discussed in more detail above).

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending July 1, 2005

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW23, MW16, MW18 and MW-17 have been completed. Drilling and sampling of well MW-13 has been completed – completion of well construction will be completed during week ending July 8, 2005.

Work Completed Last Week (Ending July 1, 2005)

Construction of well MW17 was completed on June 27th.

Drilling and sampling of well PMW13 commenced June 28th and was completed July 1st.

Well MW13 was advanced to 139 feet bgs. Suspected hydraulic units encountered during drilling operations are as follows:

Hydraulic Unit	Depth Range per Bulletin 104	Suspected Depth Range
Bellflower aquiclude	55-85 ft bgs	30-65 ft bgs
Artesia aquifer	Not present	Not encountered
Gage aquifer	Not present	Not encountered
Hollydale aquifer	Not present	Not encountered
Jefferson aquifer	185-205 ft bgs	118- 138+ ft bgs

Results for groundwater samples collected during the drilling of Well MW-13 will be reported in next week's report.

The well will be completed as follow:

Well ID	Screened Int.	Slot Size	Sand Pack Mat.	Hydraulic Unit
MW13A	56-66	0.02"	#2/16	Bellflower
MW13B	123-133	0.02"	#2/16	Jefferson

Work To Be Completed Next Week (Ending July 8, 2005)

The well box is expected to be constructed Tuesday July 5, 2005. Well MW13 will be developed.

Soil, mud and water-containing bins will be removed and appropriately disposed.

Note: To allow field personnel to rest and catch up on other projects, we are not planning to drill during the week of July 11-15, following completion of MW-13. Drilling activities will resume the following week using the Sonic drill rig. Drilling of well EW-1 will be deferred until the planned second mobilization of the mud-rotary rig, once a suitable location for PMW-22 has been agreed upon with EPA Region 9 representatives. This brief hiatus from drilling activity is not expected to have a significant impact on the overall project schedule. Other work planned for the week of July 11-15 will continue as proposed.

Issues to be Resolved

Currently awaiting resolution to access at the Catellus Property on Burke Street. Upon resolution, landscape repairs at MW-23 will take place, and construction of well EW-1 can be completed.

It was discussed previously that the gauging and sampling of the City of Santa Fe Springs OFRP wells would be completed prior to CPT sampling or drilling of wells PMW19-PMW22.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending June 24, 2005

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW23, MW16, MW18 have been installed. Installation of MW-17 is being completed.

Work Completed Last Week (Ending June 24, 2005)

Drilling and sampling activities at PMW17 was completed last week.

Well MW17 was advanced to 190 feet bgs. Suspected hydraulic units encountered during drilling operations are as follows:

Hydraulic Unit	Depth Range per Bulletin 104	Suspected Depth Range
Bellflower aquiclude	30-70 ft bgs	30-71 ft bgs
Artesia aquifer	60-100 ft bgs	92-106 ft bgs
Gage aquifer	110-150 ft bgs	115-130 ft bgs
Hollydale aquifer	175-230 ft bgs	170+ bgs

Groundwater samples (prefixed with OC2-PMW17-W-) were collected at the following depths:

Sample Depth (ft bgs)	Sample ID	PCE (µg/L)	TCE (µg/L)	1,1 DCE (µg/L)	Freon 11 (µg/L)	Chloroform (µg/L)
51.5	-0-04	<0.5	<0.5	<0.5	<0.5	<0.5
97	-0-06	240	130	75	23	1.6
117	-0-08	5.2	27	1	0.56	<0.5
147	-0-09	<0.5	<0.5	<0.5	<0.5	<0.5
172	-0-12	0.83	15	<0.5	<0.5	<0.5
182	-0-13	0.89	10	<0.5	<0.5	<0.5
192	-0-15					

The well will be completed as follow:

Well ID	Screened Int.	Slot Size	Sand Pack Mat.	Hydraulic Unit
MW17A	56-71	0.02"	#2/16	Bellflower
MW17B	94-104	0.02"	#2/16	Artesia
MW17C	172-182	0.02"	#2/16	Hollydale

Work To Be Completed Next Week (Ending July 1, 2005)

The construction of MW-17 is expected to be completed on Monday, June 27, 2005. The well box will be completed on Tuesday June 28, 2005.

It is expected that an excavation permit for drilling activities in the City of Whittier will be acquired by June 27 or June 28, 2005.

The installation of well MW-13 will be in progress. It is anticipated that the drilling activities will be completed by Friday, July 1, 2005, with well construction to be completed on Tuesday July 5, 2005. Development activities will follow well completion.

Issues Pending

Currently awaiting resolution to access at the Catellus Property on Burke Street. Verbal agreement has been reached, but OSVOG is waiting for written memorialization of the agreement. Upon resolution, landscape repairs at MW-23 will take place, and construction of well EW-1 can be commenced.

It was discussed previously that the gauging and sampling of the City of Santa Fe Springs OFRP wells would be completed prior to CPT sampling or drilling of wells PMW19-PMW22.

Due to some scheduling conflicts, it is anticipated that there will be a small break between completion of well EW-1 and the Sonic drilling. This is not expected to have a significant impact on the overall project schedule.

Soil and drilling mud in roll-off bins are awaiting disposal. Profile samples have been collected and submitted to the waste-disposal contractor.

Have requested but not yet received Weston well survey report from EPA/CH₂M Hill.

STATUS UPDATE
Omega Chemical - OU2
Week Ending June 17, 2005

Tasks Completed To Date

- City of Santa Fe Springs excavation permits in place.
- Dig Alert notified for all well locations (not including alternate locations)
- Well construction permits from LA County Department of Health Services received.
- Geophysical survey of well locations PMW15, -16, -17, -18 and -23 completed 05/06/05.
- Borings PMW13, PMW16, PMW18, PMW23 cleared using air knife.
- Well MW23 completed to 190 feet.
- Well MW16 completed to 180 feet.
- Well MW18 completed to 190 feet.

Tasks in Progress

- Application for Encroachment Permits for wells in street – City of Whittier
- Identification and contact with private property owners for access
- Installation of well PMW18 in progress.

Stratigraphic units encountered for MW-18 during drilling operations are as follows:

Based on Literature (Bulletin 104)		Based on Observation	
Hydraulic Unit	Depth	Suspected Hydraulic Unit	Depth
Bellflower	0-30	Bellflower	0-54
Artesia	Not Present	Artesia	
Gage	30-60	Gage	54-80
Hollydale	66-96	Hollydale	88-120
Jefferson	130-146	Jefferson	180-?
Lynwood	200-270	Beyond depth of well	

Chemical results of water samples at the MW-18 location are summarized (for PCE, TCE, 1,1-DCE, Freon and Chloroform) below.

Depth	PCE (ug/L)	TCE (ug/L)	11 DCE (ug/L)	Freon 11 (ug/L)	Chloroform (ug/L)
52	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
67	1.1	1.5	ND<0.5	ND<0.5	ND<0.5
77	1.2	ND<0.5	ND<0.5	ND<0.5	ND<0.5
87	0.96	ND<0.5	ND<0.5	ND<0.5	ND<0.5
97	ND<0.5	0.5	ND<0.5	ND<0.5	ND<0.5
115	0.57	ND<0.5	ND<0.5	ND<0.5	ND<0.5

Depth	PCE (ug/L)	TCE (ug/L)	11 DCE (ug/L)	Freon 11 (ug/L)	Chloroform (ug/L)
128	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
148	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
158	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
177	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
187	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5

Note – n/c = not collected

ND = not detected above reporting limit

* = sample may be drilling mud

Concentrations of the VOCs listed above were not detected in trip blanks, field blanks, or equipment blanks collected during sampling procedures for well PMW18.

Water samples were not retrieved at the 107 or at 168 foot depths due to malfunctions relating to Simulprobe equipment. No sample was collected at, 138 feet due to the presence of clays.

Well screens were installed based on the observed stratigraphy, e-logs and chemical profiles. The screens were set as follows:

MW18A From 56 – 71

MW18B from 90 – 100

MW18C 146-161

Wells were designed in consultation with EPA's contractor (CH2M Hill's on-site representative).

Issues to be Resolved

- Encroachment agreement for City of Whittier
- Authorization of change order for the change in scope of work. ARCADIS will continue to work until originally allocated funds are expended.

Upcoming Work

- Well PMW17 will be begin on Tuesday 6/21/05.
- Well MW18 will be developed Thursday 6/23/05
- E-Logging of MW23D (deep) will be put off until completion of PMW17 – the resistivity/induction probe was unavailable until 6/17/05.
- Replace sod at MW23, MW16, and MW18 locations; replace trees at MW16 and MW18 locations.

STATUS UPDATE
Omega Chemical - OU2
Week Ending June 10, 2005

Tasks Completed To Date

- City of Santa Fe Springs excavation permits in place.
- Notification to adjacent property owners of upcoming drilling activity, possible noise, etc.
- Dig Alert notified for all well locations (not including alternate locations)
- Well construction permits from LA County Department of Health Services received.
- Geophysical survey of well locations PMW15, -16, -17, -18 and -23 completed 05/06/05.
- Borings PMW13, PMW16, PMW18, PMW23 cleared using air knife.
- Well MW23 was completed to 190 feet. The deep screened interval is 175 - 185 feet, the intermediate screened interval is 145-160 feet, and the shallow interval is 87-97 feet. Should the adjacent well (approximately 60 feet from MW-23) prove to be in good condition, sampling may also be possible at an interval screened from 30-50 feet.
- Well MW-16 was completed to a depth of 180 feet. The wells were screened as follows: MW16A (shallow) 45 to 60 feet, with TD=65 feet; MW16B (intermediate) 106 to 116 feet, with TD=121 feet; MW16C (deep) 149 to 164 feet, with TD=169 feet.

Chemical results of water samples are summarized (for PCE, TCE, 1,1-DCE, Freon and Chloroform) below.

Depth	PCE (ug/L)	TCE (ug/L)	11 DCE (ug/L)	Freon 11 (ug/L)	Chloroform (ug/L)
50	n/c	n/c	n/c	n/c	n/c
57	39	14	30	0.64	ND<0.5
62	21	8.5	19	ND<0.5	ND<0.5
72	46	38	9.3	4.8	1.2
72-Dup	46	38	8.9	4.8	1.2
82	14	16	2.5	1.4	2.2
92*	ND<0.5	0.54	ND<0.5	ND<0.5	ND<0.5
123	ND<0.5	2.3	ND<0.5	ND<0.5	ND<0.5
133	ND<0.5	21	ND<0.5	ND<0.5	ND<0.5
142*	ND<0.5	1.3	ND<0.5	ND<0.5	ND<0.5
162	ND<0.5	1.2	ND<0.5	ND<0.5	ND<0.5
172	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
182	n/c	n/c	n/c	n/c	n/c

Note - n/c = not collected

ND = not detected above reporting limit

* = sample may be drilling mud

Tasks in Progress

- Application for Encroachment Permits for wells in street – City of Whittier (“Comfort letter” re future well removal from EPA in progress)
- Identification and contact with private property owner (Catellus) for access (for occasional, temporary entry, e.g., for drilling rig outrigger, repair of landscape damage, etc.)
- Installation of well PMW18 is in progress. As of June 10, well boring PMW18 was advanced to a total depth of 20 feet using the mud rotary drilling technique. Water was not encountered when drilling ceased on June 10.

Issues to be Resolved

- Encroachment agreement for City of Whittier – awaiting “comfort letter” re future well removal from EPA and Whittier’s response.
- License Agreement with Catellus for access to property adjacent to MW-23 and PEW-1 – awaiting “comfort letter” re future well removal from EPA and Catellus’ response.
- Authorization of change order for the change in scope as it relates to the original cost estimate/request for proposal and the revised scope. ARCADIS will continue to work until originally-allocated funds are expended.

Upcoming Work

- Drilling of Well PMW18 will continue during the week ending June 17. Total depth may be achieved during the week. Well screening intervals will be discussed with EPA’s consultant CH2M Hill prior to finalization of the screened intervals. Well development activities are expected to be completed on this well during the week ending June 24.
- Equipment set-up and drilling at the PMW-17 location may be initiated as early as June 20, and well construction/development may be completed as soon as June 30th.
- ARCADIS will research access issues associated with the first phase of CPT work during the week of June 13. CPT work may be initiated by the week of June 27.
- A Workplan for sampling of the wells identified in the OFRP area of Santa Fe Springs should be submitted to EPA for review during the week of June 13, 2005.
- Replace sod at MW23 and MW16 locations; replace tree at MW16 location. Sod replacement at MW23 will follow finalization of the access agreement with Catellus.

STATUS UPDATE
Omega Chemical - OU2
Week Ending June 3, 2005

Tasks Completed To Date

- City of Santa Fe Springs excavation permits in place.
- Notification to adjacent property owners of upcoming drilling activity, possible noise, etc.
- Dig Alert notified for all well locations (not including alternate locations)
- Well construction permits from LA County Department of Health Services received.
- Geophysical survey of well locations PMW15, -16, -17, -18 and -23 completed 05/06/05.
- Borings PMW13, PMW16, PMW18, PMW23 cleared using air knife.
- Well MW23 was completed to 190 feet. The deep screened interval is 175 - 185 feet, the intermediate screened interval is 145-160 feet, and the shallow interval is 87-97 feet. Should the adjacent well (approximately 60 feet from MW-23) prove to be in good condition, sampling may also be possible at an interval screened from 30-50 feet.

Tasks in Progress

- Application for Encroachment Permits for wells in street – City of Whittier ("Comfort letter" re future well removal from EPA in progress)
- Identification and contact with private property owner (Catellus) for access (for occasional, temporary entry, e.g., for drilling rig outrigger, repair of landscape damage, etc.)
- Installation of well PMW16 in progress. Well boring PMW16 was advanced to a total depth of 180 feet using mud rotary. On Friday, June 3, 2005, Pacific Surveys electronically logged the borings using SP, resistivity, gamma ray, caliper and Laterolog methods.

Stratigraphic units believed to have been encountered during drilling operations are as follows:

Based on Literature (Bulletin 104)		Based on Observation	
Hydraulic Unit	Depth	Suspected Hydraulic Unit	Depth
Bellflower	25-45	Bellflower	14-35
Artesia	45-75	Artesia	35-57
Gage	80-110	Gage	90-120
Hollydale	140-180	Hollydale	140-170
Jefferson	215-235	<i>Beyond depth of well</i>	
Lynwood	385-455	<i>Beyond depth of well</i>	

Chemical results of water samples are summarized (for PCE, TCE, 1,1-DCE, Freon and Chloroform) below.

Depth	PCE (ug/L)	TCE (ug/L)	11 DCE (ug/L)	Freon 11 (ug/L)	Chloroform (ug/L)
50	n/c	n/c	n/c	n/c	n/c
57	39	14	30	0.64	ND<0.5
62	21	8.5	19	ND<0.5	ND<0.5
72	46	38	9.3	4.8	1.2
72-Dup	46	38	8.9	4.8	1.2
82	14	16	2.5	1.4	2.2
92*	ND<0.5	0.54	ND<0.5	ND<0.5	ND<0.5
123	ND<0.5	2.3	ND<0.5	ND<0.5	ND<0.5
133	ND<0.5	21	ND<0.5	ND<0.5	ND<0.5
142*	ND<0.5	1.3	ND<0.5	ND<0.5	ND<0.5
162	ND<0.5	1.2	ND<0.5	ND<0.5	ND<0.5
172	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
182	n/c	n/c	n/c	n/c	n/c

Note – n/c = not collected

ND = not detected above reporting limit

* = sample may be drilling mud

Concentrations of VOCs were not detected in trip blanks, field blanks, or equipment blanks collected during sampling procedures for well PMW16.

Water samples were not collected at 50 feet, 102, 112, and 152 feet due to insufficient water. In gravelly soil, water samples appeared to be of the same consistency as drilling mud. The Simulprobe can only be advanced 2 feet ahead of the bottom of the drill bit. In gravelly soil, it is possible the mud also advanced this far, making the lab results for the indicated (*) depths suspect.

Electronic logs, in general, support the definition of coarse and fine layers as described on field boring logs.

Issues to be Resolved

- Encroachment agreement for City of Whittier – awaiting “comfort letter” re future well removal from EPA and Whittier’s response.
- License Agreement with Catellus for access to property adjacent to MW-23 and PEW-1 – awaiting “comfort letter” re future well removal from EPA and Catellus’ response.
- Authorization of change order for the change in scope as it relates to the original cost estimate/request for proposal and the revised scope. ARCADIS will continue to work until originally-allocated funds are expended.

Upcoming Work

- Well PMW16 will be completed week ending 6/10/05. The wells will be screened as follows: MW16A (shallow) 45 to 60 feet, with TD=65 feet; MW16B (intermediate) 106 to 116 feet, with TD=121 feet; MW16C (deep) 149 to 164 feet, with TD=169 feet.

- Equipment will be de-contaminated Tuesday. Well MW16 will be developed using air-lift also on Tuesday, with additional development, if needed Wednesday 6/8/05.
- Equipment will be set up on Well PMW18 next week Wednesday or Thursday. Barring any delays, drilling at the PMW-18 location may be initiated on June 9, 2005 and drilling may be completed by June 15. If this is accomplished, well construction of MW-18 will take place on June 16, followed by well development on June 17.
- Equipment set-up and drilling at the PMW-17 location may be initiated as early as June 20, and well construction/development may be completed as soon as June 30th.
- ARCADIS will research access issues associated with the first phase of CPT work during the week of June 13. CPT work may be initiated by the week of June 27.
- A Workplan for sampling of the wells identified in the OFRP area of Santa Fe Springs should be submitted to EPA for review during the week of June 13, 2005.
- Replace sod at MW23 and MW16 locations; replace tree at MW16 location.

STATUS UPDATE
Omega Chemical - OU2
May 31, 2005

Tasks Completed To Date

- City of Santa Fe Springs excavation permits in place.
- Dig Alert notified for all well locations (not including alternate locations)
- Well construction permits from LA County Department of Health Services received.
- Geophysical survey of well locations PMW15, -16, -17, -18 and -23 completed 05/06/05.
- Borings PMW13, PMW16, PMW18, PMW23 cleared using air knife.

Tasks in Progress

- Application for Encroachment Permits for wells in street – City of Whittier
- Identification and contact with private property owners for access
- Installation of well MW23 at Burke and Beasor continued. During the week the well was drilled to a final depth of 190 feet below grade. Based on the chemical concentrations in groundwater, the lithology encountered, and the presence of a shallow-screened well within approximately 60 feet of the MW-23 location, the following well screening depths were chosen:

First Screened Interval	87 – 97 102 feet bgs
Second Screened Interval	145 – 160 165feet bgs
Third Screened Interval	175 – 185 190feet bgs.

According to information provided by CH2M Hill, the well adjacent to this location is screened from 30 – 50 feet bgs.

Issues to be Resolved

- Encroachment agreement for City of Whittier
- Access/License Agreement with Catellus. The property owner of the land immediately adjacent to MW-23 and PEW-1 is requiring the completion of a license agreement prior to any further work being performed on their property. Unfortunately, the tight space requirements at the drilling locations necessitate access a few feet onto the property adjacent to the City of Santa Fe Springs land at these locations. Landscape work will also be required at these locations.

Upcoming Work

- Well PMW23 will be built and initial well development will take place during week ending 6/03/05.
- The three wells associated with the Monitoring Well 16 cluster will be installed and developed.

Other Issues

- Due to the presence of heaving sands in the subsurface formation, the well drillers recommended that the ARCH drilling technique be replaced by mud-rotary drilling. After discussions between ARCADIS and EPA's technical consultant, CH2M Hill, it was agreed that mud-rotary drilling would be utilized at the locations where the multi-port wells are being installed.
- EPA's consultant has requested that upon completion of the well drilling at the locations utilizing the mud-rotary drilling technique, that wells be logged using Electronic Log, Gamma Ray/Resistivity Log, Caliper Log and that the Latero Logging technique also be utilized. The work plan as approved by EPA stated that these logging techniques may be utilized if mud-rotary drilling is used. The estimated cost associated with this additional effort is approximately \$3,000/well.
- The necessity to convert from the ARCH drilling technique to the mud-rotary drilling will result in an increase in the amount of waste material generated during the well installation activities. This will in turn increase costs associated with the waste disposal efforts.

STATUS UPDATE
Omega Chemical - OU2
May 23, 2005

Tasks Completed To Date

- City of Santa Fe Springs excavation permits in place.
- Dig Alert notified for all well locations (not including alternate locations)
- Well construction permits from LA County Department of Health Services received.
- Geophysical survey of well locations PMW15, -16, -17, -18 and -23 completed 05/06/05.
- Borings PMW13, PMW16, PMW18, PMW23 cleared using air knife.

Tasks in Progress

- Identification and contact with private property owners for access
- Installation of well PMW-23 at Burke and Beasor. By May 20th, the boring was advanced to 150 feet below grade, with depth-discrete groundwater samples collected at 42, 52, 62, 82, 92, 132, 142 and 152 feet bgs. Groundwater was first encountered at 36 feet bgs. A water sample was not collected from 72 feet, despite two attempts to collect. Water samples were not collected at 102, 112, and 122 feet bgs due to the presence of tight silty clay. Drilling was switched over to mud rotary from approximately 132 feet bgs due to heaving sands. The drive casing was raised at that time to approximately 120 feet bgs. One bin of soil has been generated and profiled, pending disposal.

The Gage aquifer was encountered from approximately 32 to 47 feet bgs;

The Hollydale aquifer extends from approximately 47 to 97 feet bgs;

The Jefferson aquifer appears to start at 132 feet bgs;

Chemical results of water samples are summarized (for PCE, TCE, 1,1-DCE, Freon and Chloroform) below.

Depth	PCE (ug/L)	TCE (ug/L)	11 DCE (ug/L)	Freon 11 (ug/L)	Chloroform (ug/L)
42	600	520	310	57	140
52	63	79	44	12	26
62	660	580	430	110	140
72	--	--	--	--	--
82	69	100	39	9.2	18
92	36	31	3.2	ND<0.5	0.60
132	3.1	80	0.53	ND<0.5	0.76
142	ND<0.5	1.6	ND<0.5	ND<0.5	ND<0.5
152	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5

Issues to be Resolved

- Encroachment agreement for City of Whittier – awaiting response from the EPA regarding long-term ownership/liability.

Upcoming Work

- Well PMW23 will be completed week ending 5/27/05. Well PMW16 will be the next well to be drilled.

STATUS UPDATE
Omega Chemical - OU2
May 16, 2005

Tasks Completed To Date

- Field activities were initiated during the week of May 9, 2005. Primarily these activities consisted of clearing areas to be drilled utilizing Dig Alert, Geophysical Surveying and Air Knife work.
- Well PMW-13 in the City of Whittier and well PMW-23 in the City of Santa Fe Springs were both cleared prior to the planned drilling start date of May 16, 2005. Due to issues relating to the City of Whittier Encroachment Permit, the decision was made on May 13 to initiate drilling activities at the PMW-23 location.
- CH2M Hill was kept up to date of the planned drilling activities and utility clearance work.

Tasks in Progress

- Drilling activities will be initiated at the PMW-23 location on May 16, 2005. It is expected that the drilling activities at this location will last through the week of May 16 and into the week of May 23, 2005.
- Sampling results from the drilling operation will be provided to CH2M Hill as they become available, and the available results will be summarized during the next weekly report.
- Available geological data relating to water-bearing zones will be reviewed with CH2M Hill and the planned screened intervals for the wells may be modified based on field data.

Issues to be Resolved

- Whittier has approved OSVOG's access to its property for the purpose of installing four monitoring wells, subject to its standard terms of encroachment.
- Whittier requires \$1,000,000 in insurance and an agreement to indemnify the City against any claims arising out of the encroachment. These are standard requirements that the City required OPOG to execute a similar agreement. OSVOG will provide the insurance and the indemnity protection while it is installing the wells and conducting the first round of sampling. Once that work is finished, however, OSVOG will assign the wells to EPA, at which point EPA will need to provide the appropriate assurances to the City of Whittier. OSVOG is awaiting EPA confirmation that EPA will accept those conditions

so that OSVOG will be released from further indemnity and insurance responsibilities upon completion of the work specified in the UAO.

Upcoming Work

- Continue development of PMW 23.
- Start drilling well PMW 16. If the City of Whittier encroachment issues are resolved before starting on PMW 16, then PMW 13 will be started instead.

STATUS UPDATE
Omega Chemical - OU2
May 9, 2005

Tasks Completed To Date

- City of Santa Fe Springs excavation permit in place.
- Well inspection fees paid for wells to be drilled in City of Santa Fe Springs.
- Dig Alert notified for all well locations (not including alternate locations)
- Well construction permits from LA County Department of Health Services received.
- Geophysical survey of well locations PMW15, -16, -17, -18 and -23 completed 05/06/05.

Tasks in Progress

- Application for Encroachment Permits for wells in street – City of Whittier
- Well permits and an excavation permit have been issued by Santa Fe Springs for the well locations.

Issues to be Resolved

- Encroachment agreement for City of Whittier – The encroachment agreement between Whittier and OSVOG has been signed by OSVOG, allowing pre-drilling activities to take place; however, long-term issues, such as indemnity and insurance following assignment of wells to EPA needs to be resolved. Initiation of field work at the PMW-13 location is scheduled for May 10, but is dependant upon finalization of the agreement.

Upcoming Work

- Air knife work to clear planned well locations will be initiated on May 10, 2005.
- Assuming issues relating to the encroachment permit with the City of Whittier are resolved, ARCH drilling will commence with PMW-13, beginning 05/16/05.
- CPT borings originally planned for approximately 05/23/05 may be postponed pending the development and implementation of a sampling plan for the City of Santa Fe Springs wells near EPA's estimated leading edge of the regional plume.

STATUS UPDATE
Omega Chemical - OU2
Week of April 18, 2005

Tasks Completed

- On Friday, April 15, 2005 representatives of OSVOG met with representatives from the City of Santa Fe Springs (the City). This meeting was requested by the City and it was the understanding of OSVOG that the City wished to have information regarding the upcoming site investigation activities associated with the work OSVOG is performing as directed by U.S. EPA, Region 9. At that meeting, the City provided information regarding existing monitoring wells in close proximity to the locations of some of the more southerly Omega OU-2 planned well installation locations.
- Due to the lack of response from private property owners regarding access for well installation, locations may be altered. Alternative locations for the wells proposed on private properties have been identified in the public right-of-way.

Tasks in Progress

- Application for Encroachment Permits for wells in street (one in city of Whittier, the rest in Santa Fe Springs). – Cities of Whittier and Santa Fe Springs reviewing request for Encroachment Permits.
- Continue to attempt contact with private property owners for access. Not all of the public information regarding the names and locations of the property owners of record is current.
- OSVOG has performed a cursory review of the data provided by the City. The data shows that there was a monitoring well (City of Santa Fe Springs Well MW-1) installed in what is depicted by Weston/CH2M Hill as the plume fringe (within 500 feet of the planned location of PMW-20). Well construction information shows the well to be screened in the shallow groundwater bearing zone from approximately 55 to 91 feet below ground surface (bgs). In addition to this well, several other wells were installed by the City in the vicinity of the planned investigation. Wells that may provide meaningful data regarding groundwater concentrations in the area include MW-30, MW-25, MW-24, MW-23, and MW-18. According to soil drilling logs these wells all appear to be screened in the shallow groundwater bearing zone.

Issues to be Resolved

- An attempt will be made to locate and sample the existing wells in Santa Fe Springs to better define the current conditions. In an effort to keep the project moving forward in a timely manner, ARCADIS has conducted the cursory review and will be attempting to locate the wells on April 21 and 22, 2005.

Upcoming Work

- The City of Santa Fe Springs is also being provided additional information regarding wells that were planned for private property that may need to be installed in the public right-of-way. No delays in terms of obtaining access from the City of Santa Fe Springs are expected as a result of this change.
- The City of Whittier has been provided with proposed well location maps that depict wells on City of Whittier property. A report describing the planned well installations and locations has been prepared by city employees and will be presented to the City Council during the April 26 City Council meeting. Approval of the well locations is expected at that time.
- Confirm well locations with drilling contractors and make minor adjustments to well locations, if required.

**Weekly Update Meeting
Omega Chemical - OU2
March 30, 2005**

ACCESS ISSUES

- City of Whittier will now require approval by City Council for well installations. Currently this is scheduled for the April 26, 2005 City Council Meeting
 - D. Mochizuki currently out of town. He will return on 4/4/05.
- City of Santa Fe Springs requested additional information regarding well locations. ARCADIS currently addressing the request by preparing detailed package regarding well locations.
- Meeting scheduled for April 15, 2005 at City of Santa Fe Springs to discuss project issues and access issues

Project Budget Explanation Request

- ARCADIS preparing a letter explaining changes to the projected costs of completing the work.

STATUS UPDATE
Omega Chemical - OU2
February 16, 2005

Tasks Completed To Date

- RI Workplan
- Field Sampling Plan
- Quality Assurance Project Plan (see note below)
- Health & Safety Plan
- Submitted proposed baseline schedule for field activities (attached)
- Transmittal of FSP to City of Santa Fe Springs Department of Public Works,

Tasks in Progress

- Well Construction Permits submitted
- Property acquisition activities ongoing

Issues to be Resolved

- Access agreements to well locations on private property, in particular for PMW13

Upcoming Work

- Work will commence with installation of CPT borings on downgradient edge of plume. Initiation of this work is contingent upon finalization of access agreements/right-of-way permits.

STATUS UPDATE
Omega Chemical - OU2
February 9, 2005

Tasks Completed To Date

- RI Workplan
- Field Sampling Plan
- Quality Assurance Project Plan (see note below)
- Health & Safety Plan

Tasks in Progress

- Well Construction Permits submitted
- Re-establish baseline schedule for field activities
- Implementation of Subcontractor Agreements
- Transmittal of FSP to City of Santa Fe Springs Department of Public Works,
(Should be transmitted by COB 02/09/05)

Issues to be Resolved

- Access agreements to well locations on private property, in particular for
PMW13

Upcoming Work

- Work will commence with installation of CPT borings on downgradient edge of
plume. Initiation of this work is contingent upon finalization of access
agreements/right-of-way permits.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending August 18, 2006

Work Completed To Date

The following activities have been completed to date:

- The FSP and QAPP have been completed and approved.
- Well permits from the LA County DHS have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW 12, MW-13, MW-14, MW15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, MW-22, MW-23 and EW-1 have been completed.
- All wells have been developed. Development water disposed of.
- Dedicated bladder pumps installed in all wells except MW-13A, MW-17A and MW-19 (due to little to no water present).
- All groundwater monitoring wells sampled. Samples sent to E-Max for chemical analysis. Included in samples: 10 percent duplicates and QC samples.

Work Completed Last Week (Ending August 18, 2006)

Report generation in progress.

Work to Be Completed This Week (Ending August 25, 2006)

Level III QC data in progress. Survey data was further revised for QC errors. Continued preparation of report

Planned Activities for Week Ending September 1, 2006

Continue report generation.

It is currently anticipated that the Draft Well Installation and Sampling Report will be submitted to EPA on September 26, 2006.

Issues to be Resolved

None to report.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending August 11, 2006

Work Completed To Date

The following activities have been completed to date:

- The FSP and QAPP have been completed and approved.
- Well permits from the LA County DHS have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW 12, MW-13, MW-14, MW15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, MW-22, MW-23 and EW-1 have been completed.
- All wells have been developed. Development water disposed of.
- Dedicated bladder pumps installed in all wells except MW-13A, MW-17A and MW-19 (due to little to no water present).
- All groundwater monitoring wells sampled. Samples sent to E-Max for chemical analysis. Included in samples: 10 percent duplicates and QC samples.

Work Completed Last Week (Ending August 11, 2006)

Report generation in progress.

Work to Be Completed This Week (Ending August 18, 2006)

Level III QC data in progress. Survey data was revised for QC errors. Continued preparation of report

Planned Activities for Week Ending August 25, 2006

Continue report generation.

Issues to be Resolved

None to report.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending August 4, 2006

Work Completed To Date

The following activities have been completed to date:

- The FSP and QAPP have been completed and approved.
- Well permits from the LA County DHS have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW 12, MW-13, MW-14, MW15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, MW-22, MW-23 and EW-1 have been completed.
- All wells have been developed. Development water disposed of.
- Dedicated bladder pumps installed in all wells except MW-13A, MW-17A and MW-19 (due to little to no water present).
- All groundwater monitoring wells sampled. Samples sent to E-Max for chemical analysis. Included in samples: 10 percent duplicates and QC samples.

Work Completed Last Week (Ending August 4, 2006)

Two of six sets of lab results received – being tabulated and reviewed. Report generation in progress.

Work to Be Completed This Week (Ending August 11, 2006)

Received remaining 4 sets of lab results and Level III QC data. Continue to review lab reports, tabulate lab data, evaluate lab QC. EPA Level III QC data being sent to Laboratory Data Consultants (LDC) for their review. Continued preparation of report

Planned Activities for Week Ending August 18, 2006

Continued preparation of report

Issues to be Resolved

None to report.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending July 28, 2006

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW 12, MW-13, MW-14, MW15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, and MW-22 have been completed.

Work Completed Last Week (Ending July 28, 2006)

Report generation in progress.

Work to Be Completed This Week (Ending August 4, 2006)

Two sets of analytical data (out of 6) received from E-Max. Review lab reports, tabulate lab data, evaluate lab QC. Continue preparation of report.

Planned Activities for Week Ending August 11, 2006

Continue preparation of report.

Issues to be Resolved

Developing revised schedule to reflect additional time necessary to complete work, as identified in report for week of July 14, 2006.

STATUS UPDATE
Omega Chemical - OU2
July 21, 2006

Tasks Completed To Date

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW 12, MW-13, MW-14, MW15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, MW-22 and EW-1 have been completed and developed.
- Dedicated well pumps have been installed in the groundwater monitoring wells. Consistent with the criteria provided by EPA, pumps were not ordered for Monitoring Wells 13a, 17a or for 19. As previously detailed, these wells had less than five feet of water in the screened interval when measurements were taken prior to ordering the pumps. EPA was informed of, and approved this change.
- Well casing have been surveyed.
- Water level measurements have been collected.
- Field activities associated with groundwater monitoring have been completed.

Work Completed Last Week (Ending July 21, 2006)

Field activities associated with groundwater monitoring have been completed. Analytical results are pending.

Work to Be Completed This Week (Ending July 28, 2006)

None. Analytical results are pending.

Planned Activities for Week Ending August 4, 2006

Activities associated with the preparation of the Construction Completion Report will continue.

Issues to be Resolved

- Developing revised schedule to reflect additional time necessary to complete work, as identified in report for week of July 14, 2006.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending July 14, 2006

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW 12, MW-13, MW-14, MW15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, MW-22 and EW-1 have been completed and developed.
- Dedicated well pumps have been installed in the groundwater monitoring wells. Consistent with the criteria provided by EPA, pumps were not ordered for Monitoring Wells 13a, 17a or for 19. As previously detailed, these wells had less than five feet of water in the screened interval when measurements were taken prior to ordering the pumps. EPA was informed of, and approved this change.
- Well casing have been surveyed.
- Water level measurements have been collected.
- Field activities associated with groundwater monitoring have been completed.

Work Completed Last Week (Ending July 14, 2006)

Field activities associated with groundwater monitoring have been completed. Analytical results are pending.

Work to Be Completed This Week (Ending July 21, 2006)

Activities associated with the preparation of the Construction Completion Report continue.

Planned Activities for Week Ending July 28, 2006

Activities associated with the preparation of the Construction Completion Report will continue.

Issues to be Resolved

ARCADIS has been in contact with E-Max, the laboratory contracted to conduct the analysis of the groundwater samples currently being collected. E-Max has informed ARCADIS that the current turn-around time for reporting sample results is approximately four weeks. At the time the schedule was prepared, a one week turn-around was anticipated. The one week turn-around is consistent with laboratories utilized to date for the field screening sampling. The four week turn-around time coupled with the greater than anticipated time it has taken to conduct the groundwater sampling will have an impact on the overall project schedule. Although we will work to minimize impacts to the project schedule, it is currently anticipated that this delay will impact the overall project schedule by approximately three weeks.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending July 7, 2006

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW 12, MW-13, MW-14, MW15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, MW-22 and EW-1 have been completed and developed.
- Dedicated well pumps have been installed in the groundwater monitoring wells. Consistent with the criteria provided by EPA, pumps were not ordered for Monitoring Wells 13a, 17a or for 19. As previously detailed, these wells had less than five feet of water in the screened interval when measurements were taken prior to ordering the pumps. EPA was informed of, and approved this change.
- Well casing have been surveyed.
- Water level measurements have been collected

Work Completed Last Week (Ending July 7, 2006)

Additional well development activities were performed at MW-16B. During the gauging of the well, it was noted that some silt remained in the well. Therefore, additional development activities were performed and the well was re-gauged.

To assure that product warranty/guarantees associated with the dedicated bladder pumps would not be affected, groundwater monitoring activities were postponed until July 6, 2006 to allow for representatives from the well pump company (QED) to be present and provide instructional training to field staff regarding the proper operation of the equipment.

After initiation of the sampling activities it was found that due to the relatively slow recharge rates in several of the wells, the time to conduct the groundwater monitoring was significantly greater than originally anticipated. In an attempt to minimize potential schedule impacts, ARCADIS secured the use of a second set of groundwater sampling equipment so that sampling activities could be conducted at two nested well locations at the same time. Slow recharge rates in wells with pumps, especially noted in MW-12 and MW-16A, resulted in a protracted sampling schedule. The slow recharge rates in both MW-19 and MW-17A (wells without pumps) have also adversely impacted the schedule.

Work to Be Completed This Week (Ending July 14, 2006)

It is anticipated that the groundwater monitoring activities will be completed during the week ending July 14, 2006.

Field activities will be completed when all required groundwater samples have been collected.

Planned Activities for Week Ending July 21, 2006

No further field activities are anticipated.

Project-related activities will consist of report preparation tasks.

Issues to be Resolved

ARCADIS has been in contact with E-Max, the laboratory contracted to conduct the analysis of the groundwater samples currently being collected. E-Max had been selected for this phase of the project in order to meet EPA's QA/QC criteria. E-Max has informed ARCADIS that the current turn-around time for reporting sample results is approximately four weeks. At the time the schedule was prepared, a one week turn-around was anticipated. The one week turn-around is consistent with laboratories utilized to date for the field screening sampling. The four week turn-around time coupled with the greater than anticipated time it has taken to conduct the groundwater sampling will have an impact on the overall project schedule. Although we will work to minimize impacts to the project schedule, it is currently anticipated that this delay will impact the overall project schedule by approximately three to four weeks.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending June 30, 2006

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW 12, MW-13, MW-14, MW15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, MW-22 and EW-1 have been completed and developed.
- Dedicated well pumps have been installed in the groundwater monitoring wells. Consistent with the criteria provided by EPA, pumps were not ordered for Monitoring Wells 13a, 17a or for 19. As previously detailed, these wells had less than five feet of water in the screened interval when measurements were taken prior to ordering the pumps. EPA was informed of, and approved this change.
- Well casing have been surveyed.
- Water level measurements have been collected

Work Completed Last Week (Ending June 30, 2006)

Dedicated well pumps were installed in monitoring wells with at least five feet of water in the screened interval. Consistent with criteria provided by EPA, pumps were not ordered for Monitoring Wells 13a, 17a, or for 19. As previously detailed, these wells had less than five feet of water in the screened interval when measurements were taken prior to ordering the pumps. EPA was informed of, and approved, this change.

Work to Be Completed This Week (Ending July 7, 2006)

Groundwater monitoring will be initiated on Thursday, July 6, 2006. It is currently anticipated that the groundwater monitoring activities will be completed on or before July 11, 2006.

Planned Activities for Week Ending July 14, 2006

It is currently anticipated that groundwater monitoring activities will be completed on July 11, 2006.

Issues to be Resolved

None to report.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending June 23, 2006

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW 12, MW-13, MW-14, MW15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, and MW-22 have been completed.
- Well casings have been surveyed.

Work Completed Last Week (Ending June 23, 2006)

Well development activities were completed

Water levels were measured in the groundwater monitoring wells.

Well casing surveying was completed. Survey data will be provided to EPA's consultant (CH2M Hill) upon receipt.

Work to Be Completed This Week (Ending June 30, 2006)

Dedicated well pumps will be installed in wells. Consistent with criteria provided by EPA, pumps were not ordered for Monitoring Wells 13a, 17a, or for 19. As previously detailed, these wells had less than five feet of water in the screened interval when measurements were taken prior to ordering the pumps. EPA was informed of, and approved, this change.

Groundwater monitoring activities that were planned for this week have been postponed due to scheduling issues.

Planned Activities for Week Ending July 7, 2006

Groundwater monitoring will be initiated on July 5, 2006 and monitoring is expected to be completed on July 6, 2006.

Issues to be Resolved

None to report.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending June 16, 2006

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW 12, MW-13, MW-14, MW15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, and MW-22 have been completed.

Work Completed Last Week (Ending June 16, 2006)

Well development activities continued.

Work to Be Completed This Week (Ending June 23, 2006)

Surveying of the wells will be completed. Survey data will be provided to EPA's consultant (CH2M Hill) upon receipt.

Consistent with criteria provided by EPA, pumps were not ordered for Monitoring Wells 13a, 17a, or for 19. As previously detailed, these wells have less than five feet of water in the screened interval.

Water level measurements will be collected from the wells.

Scheduling conflicts with the well pump provider have caused a minor delay in the installation schedule. Pump installation is expected to take place early during week ending June 30, 2006.

Planned Activities for Week Ending June 30, 2006

Installation of well pumps will take place.

Groundwater monitoring will be initiated and is expected to be completed by June 30, 2006.

Issues to be Resolved

None to report.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending June 9, 2006

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW 12, MW-13, MW-14, MW15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, and MW-22 have been completed.

Work Completed Last Week (Ending June 9, 2006)

Well development activities continued.

Work to Be Completed This Week (Ending June 16, 2006)

Well development activities will continue.

Well pumps will be ordered. Consistent with criteria provided by EPA, pumps will not be ordered for Monitoring Wells 13a, 17a, or for 19. These wells have less than five feet of water in the screened interval. Specifically, Monitoring Well 13a is currently dry, Monitoring Well 17a has a small amount of water in the sump, none in the screened interval, and Monitoring Well 19 has only a foot of water in the screened interval.

The newly installed wells will be surveyed. Surveying activities will be performed consistent with the procedures previously utilized for wells installed in 2005.

Planned Activities for Week Ending June 23, 2006

Well development activities will continue. Development work is currently planned for MW-12, MW-13b, and MW-17a. Due to the lack of water in the formation at the MW-17a location,

domestic drinking water may be utilized during well development, as approved by communications with EPA. Pursuant to EPA's instructions, the water will be analyzed prior to insertion into the well utilizing EPA Standard Method 8260B, and the volume of water added to the well and the amount removed will be recorded.

Issues to be Resolved

None to report.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending June 2, 2006

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW 12, MW-13, MW-14, MW15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, and MW-22 have been completed.

Work Completed Last Week (Ending June 2, 2006)

Well development activities continued.

Work to Be Completed This Week (Ending June 9, 2006)

Well development activities will continue.

Well pumps will be ordered.

Planned Activities for Week Ending June 16, 2006

Well development activities should be completed by June 16, 2006.

Issues to be Resolved

None to report.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending May 26, 2006

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW 12, MW-13, MW-14, MW15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, and MW-22 have been completed.

Work Completed Last Week (Ending May 26, 2006)

Drilling at the MW-20 location was completed. Drilling at the EW-1 location was also completed during the week. Well development activities continued.

Work to Be Completed This Week (Ending June 2, 2006)

The following activities are expected to continue during week ending June 2, 2006:

- Well development activities will continue.

Planned Activities for Week Ending June 9, 2006

It is anticipated that well development activities may still be ongoing. In addition, ARCADIS will order bladder pumps for wells and arranging to have well casings surveyed.

Issues to be Resolved

None to report.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending May 19, 2006

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW 12, MW-13, MW-14, MW-15, MW-16, MW-17, MW-18, MW-19, MW-21, and MW-22 have been completed.

Work Completed Last Week (Ending May 19, 2006)

Drilling at the MW-20 location was initiated during the week. Due to a conflict in the driller's schedule, deployment of the drilling rig was delayed until May 17, 2006.

Well development activities were conducted as needed at various well locations.

Work to Be Completed This Week (Ending May 26 2006)

The following activities are expected to be completed by end of May 19, 2006:

- Completion of drilling of well MW-20 is expected.
- Initiation of drilling activities at EW-1 is expected.
- Well development activities will continue.

Planned Activities for Week Ending June 2, 2006

It is anticipated that the drilling activities associated with well EW-1 will be completed.

Issues to be Resolved

None to report.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending May 19, 2006

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW 12, MW-13, MW-14, MW15, MW-16, MW-17, MW-18, MW-19, MW-21, and MW-22 have been completed.

Work Completed Last Week (Ending May 12, 2006)

Installation of well MW-14 was completed. The sonic drilling program is now complete. Screening sample results from MW-14 that have been received to date indicate PCE and TCE at levels lower than anticipated.

Work to Be Completed This Week (Ending May 19 2006)

The following activities are expected to be completed by end of May 19, 2006:

- Initiation of mud rotary drilling activities associated with MW-20 is expected to be initiated during the week. The drilling equipment is expected to be available on May 17. This is two days later than originally anticipated.

Planned Activities for Week Ending May 26, 2006

It is anticipated that the drilling activities associated with well MW-20 will continue throughout the week. Should activities be completed, work will be initiated at the EW-1 location.

Issues to be Resolved

None to report.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending May 5, 2006

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW 12, MW-13, MW15, MW-16, MW-17, MW-18, MW-19, MW-21, and MW-22 have been completed.

Work Completed Last Week (Ending May 5, 2006)

Well MW-19 was installed. Work on the installation of MW-14 is ongoing and is expected to be completed by May 8, 2006. Preliminary screening sample results from PMW-19 did not show TCE or PCE at or above the detection limit, although low levels of other VOCs including 1,2,4-trimethylbenzene, bromodichloromethane, bromoform, dibromochloromethane, toluene, ethylbenzene, as well as m-, p-, and o-xylenes were detected. Screening sample preliminary results from MW-14 that have been received to date indicate PCE and TCE at levels lower than anticipated.

Work to Be Completed This Week (Ending May 12, 2006)

The following activities are expected to be completed by end of May 5, 2006:

- Completion of the drilling activities associated with MW-14 is expected during week ending May 12, 2006. roadway, moving the location back onto the hospital property is being proposed. The proposed location change will be discussed with EPA prior to implementation.

Planned Activities for Week Ending May 19, 2006

It is currently anticipated that the mud rotary drilling program will be initiated on May 15, 2006 at the proposed EW-1 location.

Issues to be Resolved

None to report.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending April 28, 2006

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW 12, MW-13, MW15, MW-16, MW-17, MW-18, MW-21, and MW-22 have been completed.

Work Completed Last Week (Ending April 28, 2006)

Wells MW-22 and MW-21 have been installed. Screening sampling for VOCs performed during the well drilling activities showed concentrations of PCE between the method detection limit and the MCL.

Work to Be Completed This Week (Ending May 5, 2006)

The following activities are expected to be completed by end of May 5, 2006:

- Completion of the drilling activities associated with MW-19 is expected during week ending May 5, 2006.
- Mobilization and initiation of drilling activities associated with the PMW-14 location are expected to take place on Friday, May 5, 2006. The well location was originally located on hospital property near the intersection of Washington Blvd. and Lambert Road. The proposed well was then moved into Washington Blvd. Due mainly to the significant amount of utilities in the roadway and health & safety concerns with drilling in the busy roadway, moving the location back onto the hospital property is being proposed. The proposed location change will be discussed with EPA prior to implementation.

Planned Activities for Week Ending May 12, 2006

It is currently anticipated that well drilling at the PMW-14 location will be completed during week ending May 12.

Issues to be Resolved

PMW-14 Location

The current location for PMW-14 adjacent to Washington Boulevard presents some serious logistical concerns primarily associated with underground utilities and limitations on drilling times due to concerns relating to traffic congestion. The City of Santa Fe Springs has indicated that they will only allow drilling between 9:00 am and 3:00 pm and that all drilling equipment must be removed each work day. This will only allow for approximately three hours of drilling per day. OSVOG is currently reviewing options for nighttime work or drilling at an alternate location that will still meet with the project objectives. An alternative location in a parking lot of a hospital located at the corner of Washington Boulevard and Lambert is being proposed. Drilling is planned to be initiated at that location upon receipt of EPA's acceptance of the location change.

Note: EPA approved the alternate location in the parking lot of Presbyterian Intercommunity Hospital on May 4. Site clearance and drilling work will proceed as scheduled.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending April 28, 2006

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW23, MW16, MW18, MW17, MW13, MW12 and MW15 have been completed.

Work Completed Last Week (Ending April 21, 2006)

No field activities were performed during the week ending April 21, 2006. Work was performed to assure proper permits would be in place to allow for timely initiation of field activities. Although utility clearance activities were originally planned, administrative issues with the down-gradient municipality resulted in rescheduling of these activities to the following week. This rescheduling has had no effect on the overall project schedule as actual drilling was nonetheless able to occur as planned.

A discussion was held with EPA's consultant regarding the location of PMW-19. The location will be slightly altered to avoid future conflicts with the property owner's development plans. EPA's consultant agreed that the slight adjustment to the location was acceptable. The location will be within 100 feet of the previously marked location.

Work to Be Completed This Week (Ending April 28, 2006)

The following activities are expected to be completed by end of April 28, 2006:

- Mobilization and initiation of field activities associated with well drilling took place on April 24, 2006. Field activities were initiated at the PMW-22 location. Groundwater was first encountered at a depth of 66 feet. A summary of samples collected and the analytical results will be provided in the next weekly report. It is anticipated that the well drilling at this location will be completed on April 28, 2006

- Utility clearance activities will be conducted at the PMW-21 location on April 27, 2006. clearance at other planned drilling locations will follow.

Planned Activities for Week Ending May 5, 2006

It is currently anticipated that well drilling at the PMW-21 location will be initiated on May 1, 2006, and that the well should be completed by May 5, 2006.

Issues to be Resolved

PMW-14 Location

The current location for PMW-14 adjacent to Washington Boulevard presents some serious logistical concerns primarily associated with underground utilities and limitations on drilling times due to concerns relating to traffic congestion. The City of Santa Fe Springs has indicated that they will only allow drilling between 9:00 am and 3:00 pm and that all drilling equipment must be removed each work day. This will only allow for approximately three hours of drilling per day. OSVOG is currently reviewing options for nighttime work or drilling at an alternate location that will still meet with the project objectives.

WEEKLY STATUS UPDATE

Omega Chemical OU-2
Week Ending April 21, 2006

Work Completed To Date

The following activities have been completed to date:

- The Field Sampling Plan and Quality Assurance Project Plan have been completed and approved.
- Well permits from the Los Angeles County Department of Health Services have been obtained for all well locations.
- Access agreements / Excavation permits have been obtained from the Cities of Whittier and Santa Fe Springs.
- Dig Alert numbers have been obtained for all well locations, and are being updated as needed.
- Wells MW23, MW16, MW18, MW17, MW13, MW12 and MW15 have been completed.

Work Completed Last Week (Ending April 14, 2006)

No field activities were performed during the week ending April 14, 2006. Work was performed to assure proper permits would be in place to allow for timely initiation of field activities.

Work to Be Completed This Week (Ending April 21, 2006)

The following activities are expected to be completed by end of April 21, 2006:

- It is anticipated that necessary permits will be in place to allow for utility clearance work to be initiated. This work will include the use of an air knife to help locate potential underground utilities to a depth of approximately eight feet below grade.
- A slight delay was encountered when attempts were made to re-activate necessary permits at the City of Santa Fe Springs. The previously submitted permit package had been misplaced, and the individual who had addressed the permitting issues for the City had retired. The City is working with OSVOG to assure timely re-activation of permits.

Planned Activities for Week Ending April 28, 2006

It is currently anticipated that well drilling activities will be initiated on April 24 at the PMW-22 location. Upon completion of this location, drilling at PMW-21 will be initiated.

Issues to be Resolved

PMW-14 Location

The current location for PMW-14 adjacent to Washington Boulevard presents some serious logistical concerns primarily associated with underground utilities and limitations on drilling times due to concerns relating to traffic congestion. The City of Santa Fe Springs has indicated that they will only allow drilling between 9:00 am and 3:00 pm and that all drilling equipment must be removed each work day. This will only allow for approximately three hours of drilling per day. OSVOG is currently reviewing options for nighttime work or drilling at an alternate location that will still meet with the project objectives.

Other Items of Interest

PMW-19 Location

The property owner/tenant at the location adjacent to the planned installation site of PMW-19 has raised some objections to the planned work. To avoid potential issues with this party, OSVOG representatives approached EPA's contractor with a suggestion to move the well installation location by approximately 100 feet to the east. The new location of the well was reviewed with EPA's contractor on April 19, 2006 and it was agreed that the alternative location would be suitable for installation of the monitoring well.



ARCADIS

Appendix B

Permits



Infrastructure, buildings, environment, communications

Transmittal Letter

To:
David Collos
City of Whittier
13230 Penn Street
Whittier, CA 90602-1772

Copies:
Project File

ARCADIS G&M, Inc.
1400 No. Harbor Boulevard
Suite 700
Fullerton
California 92835-4127
Tel 714.278.0992
Fax 714.278.0051

From:
Ron Halpern

Date:
July 11, 2005

ENVIRONMENTAL

Subject:
Omega Chemical Operable Unit 2, Whittier, California,
EPA Site ID#09BC, Docket No. 9-2004-004

ARCADIS Project No.:
CA000646.001.0010

We are sending you:

☒ Attached

☐ Under Separate Cover Via _____ the Following Items:

☐ Shop Drawings

☐ Plans

☐ Specifications

☐ Change Order

☐ Prints

☐ Samples

☐ Copy of Letter

☐ Reports

☒ Other: _____

Copies	Date	Drawing No.	Rev.	Description	Action*
1	7/7/05			City of Whittier Excavation/Construction Permit No. 7977	

Action*

☐ A Approved

☐ CR Correct and Resubmit

☐ Resubmit _____ Copies

☐ AN Approved As Noted

☒ F File

☐ Return _____ Copies

☐ AS As Requested

☐ FA For Approval

☐ Review and Comment

☐ Other: _____

Mailing Method

☒ U.S. Postal Service 1st Class

☐ Courier/Hand Delivery

☐ FedEx Priority Overnight

☐ FedEx 2-Day Delivery

☐ Certified/Registered Mail

☐ United Postal Service (UPS)

☐ FedEx Standard Overnight

☐ FedEx Economy

☐ Other: _____

Comments: _____

TO: APPLICANT ✓ JOB SITE _____ INSPECTOR _____ FILE _____ CONTROLLERS _____

CITY OF WHITTIER
EXCAVATION/CONSTRUCTION PERMIT
(562) 464-3510

Name Ron Halpern Date July 7, 2005
Mailing Address 1400 N. Harbor Blvd., Ste. 700 Phone 714-278-0992 ext. 3052
City Fullerton, CA 92835
Job Address 12482 Putnam Street Plan No. _____

Permission is hereby granted, pursuant to the Whittier Municipal Code, to excavate and/or construct in the City right-of-way as follows:
Drill and install a groundwater monitoring well approved by City Council on 4/26/05 for the purposes of monitoring groundwater quality associated with the Omega Chemical site. Once installed (in the street), the well will be enclosed in a traffic-rated well box flush with the surface. Traffic control per W.A.T.C.H.

***Call UNDERGROUND SERVICE ALERT at 1-800-422-4133, two (2) working days BEFORE you dig.**

PERMIT FEES

_____ Driveways _____	\$ -
_____ Sidewalks _____	\$ -
_____ Curbs, gutters and/or monolithic curbs and gutters _____	\$ -
_____ Excavation in Public Right-of -Way _____	\$ -
_____ Material storage in Public right-of-way _____	\$ -
_____ Temporary fencing in Public Right-of Way _____	\$ -
_____ Curb Drains _____	\$ -
_____ Street Cut _____	\$ -
_____ Street Closure _____	\$ -
_____ Sprinkler system in parkway _____	\$ -
_____ Canopies _____	\$ -
_____ Rider _____	\$ -
_____ Penalty _____	\$ -
_____ Slurry Seal Deposit: Account No. _____	\$ -
<u>X</u> Other: <u>No fee permit</u>	\$ -
TOTAL	NO FEE

A copy of this permit must be kept on the job site during construction and until final inspection has been completed.

This permit expires on August 12, 2005 By David Collosi

NOTICE OF COMPLETION

Return to:
Director of Public Works
City of Whittier
13230 Penn Street
Whittier, CA 90602-1772

DATE: 7/7/05

NO. 7977

Notice is hereby given that the work allowed by the permit number noted hereon has been completed in the manner provided in said permit and all obstructions, materials and debris have been removed.

Signed: _____

THIS NOTICE MUST BE RETURNED WITHIN 10 DAYS OF COMPLETION

CITY OF WHITTIER

APPLICATION FOR PERMIT TO EXCAVATE/CONSTRUCT

PLEASE PRINT OR TYPE:

Name RON HALPERN Date 6/27/05
 Mailing Address 1400 N. Harbor Blvd Ste 700 Phone (714) 278-0992 x3052
 City Fullerton Zip 92835
 Job Address 12482 Putnam St, Whittier Plan No. _____

hereby makes an application for permission to make the following excavation under the provisions of City ordinance to-wit:

Drill and install a groundwater monitoring well for the purposes of
monitoring groundwater quality associated with the Omega Chemical site.
Once installed (in the street), the well will be enclosed in a traffic-rated well box flush
with the surface. Traffic Control per WATCH

This applicant hereby agrees that the above-described work shall be commenced within 5 days from the date of the permit issued hereunder and shall be diligently and continuously pursued to completion, and that the excavation made under said permit shall be refilled in the manner provided for in said ordinance, and all construction materials and debris removed within 21 days from date upon which excavation is commenced or said street, alley or public place is first obstructed by said applicant, or that said excavation may be refilled in such manner, and any construction materials and debris may be removed by the Public Works Department at the expense of such applicant.

FEE SCHEDULE

Residential Driveway Permit/Inspection - \$194 each	_____
Commercial Driveway Permit/Inspection - \$479 each	_____
Sidewalk Permit/Inspection - \$123.00 plus \$.10 per square foot for area in excess of 300 sq. ft.	_____
Curb, gutter and/or monolithic curb and gutter - \$113.00 plus \$.20 per lineal foot in excess of 50 ft.	_____
Residential Excavation in Public Right-of-Way - \$60.00	_____
Commercial Excavation in Public Right-of-Way - \$146.00	_____
Material Storage in Public Right-of-Way - \$127.00	_____
Temporary Fencing in Public Right-of-Way - \$119.00	_____
Curb Drain - \$85.00	_____
Street Cut Permit - \$119.00	_____
Street Closure - \$292.00	_____
Sprinkler System in Parkway - \$79.00	_____
Construction Canopy - \$125.00 + \$50.00 per week	_____
Rider: \$54.00	_____
Penalty: \$125.00 per item	_____
Slurry Seal Deposit: Account No. _____	_____
<input checked="" type="checkbox"/> Other: <u>No-Fee permit.</u>	<u>0</u>
TOTAL	<u>0</u>

Office Use Only

Tentative Permit No. 7977
 Application received by: RC
 Field checked by: _____
 Approved by: David Collier
 General Information
 Attached: No

This is only an application, NOT A PERMIT.
 No work shall be started prior to permit approval.

Signed: (Constructor/Property Owner) Ronald Halpern - ARCADIS
 Address 1400 N. Harbor Blvd
 City Fullerton, CA Zip 92835
 State #/City License 57186
 Phone No. (714) 278-0992

Corporate: (720) 344-3817 630 Plaza Dr., Ste 200, Highlands Ranch, CO 80129

THIS APPLICATION CANNOT BE PROCESSED UNLESS BOTH SIDES OF THIS SHEET ARE SIGNED BY THE APPLICANT.

CITY OF WHITTIER APPLICATION FOR PERMIT TO EXCAVATE/CONSTRUCT

All tree roots encountered during excavation shall be protected in place. Under no circumstances is permittee allowed to cut, trim, shave or break any portion of the tree roots without written approval from the City.

Damages (\$500 minimum) will be assessed for any person violating this provision.

I hereby acknowledge and agree to abide by all aforementioned provisions stated in the permit and waive my right to challenge said provisions. I hereby agree that I am solely responsible for any violation resulting from the acts or actions taken by my designees, not limited to, employees, partners and/or friends in any form or cause.

Applicant Signature: _____

Ronald Hef

IMPORTANT

APPLICANT MUST SIGN BOTH SIDES OF THIS APPLICATION

PERMIT PROVISIONS

1. All work shall be done in accordance with the Standard Specifications for Public Works Construction, latest edition and addendum, unless otherwise specified.
 2. All traffic control shall be done in accordance with the Work Area Traffic Control Handbook, latest edition.
 3. All work authorized under this permit must be completed within the time specified therein, and unless so completed, this permit shall be void. An extension may be granted if applied for 24 hours before this permit expires.
 4. Provisions shall be made for barricades, lights and traffic control personnel to adequately protect the traveling public during construction and excavation operations. When necessary for public safety, traffic control personnel shall be on duty throughout the twenty-four (24) hours of each day. Two lanes of traffic shall remain open to the public at all times, one lane in each direction. Whenever it is necessary to direct traffic across the center of the street into oncoming traffic lanes, procedures outlined in the Work Area Traffic Control Handbook, latest edition, shall be followed and the approval of the Traffic Engineering is required.
 5. City of Whittier, Public Works Department, shall be notified at least 24 hours before start of work by phoning (562) 464-3510. Should the City Inspector find working progress prior to notification by the Permittee, work may be stopped for a period of not less than the remainder of the working day.
 6. A penalty will be charged for failure to apply for a permit prior to commencement of work.
- All work authorized under this permit must be diligently and continuously pursued so as to complete the work in as short a time as possible; and if not so pursued, this permit may be cancelled.
8. No debris or spoil shall be left in the street overnight.
 9. All of the backfill within the area of the road bed shall be of aggregate base materials only (Section 220-2.1), and shall be thoroughly pneumatically tapped in layers not to exceed 4" in depth, except that trenches in excess of 30" below the bottom of the pavement may be compacted in 8" layers or other acceptable methods. Compaction test shall be taken by the permittee when and where required by the Inspector. Densities shall meet the requirements of Section 300-4.7 and 301-1.3 of Standard Specifications and of this permit.
 10. When excavations are made in a parkway area which is landscaped, it shall be the contractor's responsibility to replace plants, shrubs and sod in a neat and workmanlike manner, leaving the area in as near its original state as possible, all to the satisfaction of the Street Maintenance Manager, Park Manager and/or Director of Public Works.
 11. All concrete shall be cut to nearest score marks with a concrete saw in the depth of 2".
 12. Repairs to Portland Cement Concrete shall be made of Portland Cement Concrete containing minimum 5.5 sacks of cement per cubic yard. Concrete pavement shall be constructed to a minimum thickness of 6", no less than the existing pavement and placed on a 4" base material. Portland Cement Concrete shall be satisfactorily cured, with Hunt's Process of equal and protected from disturbances for not less than 24 hours.
 13. All asphalt concrete may be cut with a concrete saw to a minimum depth of 2". If a concrete saw is not used, the cut must be made neatly and uniformly by an acceptable method.
- Repairs to rock and oil or asphaltic concrete pavement shall be made with plant mix resurfacing, Type I. Patches shall be a minimum of 4" and not less than existing pavement plus 1" and placed on Type A base minimum 6" thick. All edges shall be treated with a tack coat. Base course shall be $\frac{3}{4}$ " the inspector shall determine mix and top course.

PERMIT PROVISIONS (Continued)

15. The holder of any permit and any agent, servant or employee working for the said permit holder on any excavation and fill, shall inform himself and obtain all necessary information as to the existence of and location of all underground pipes, lines, manholes, wires, substructures and appurtenances of any utility. The City shall be protected by the permittee against any damage by reason of any excavation on fill. Any damage caused to such underground installations, appurtenances, or substructures, shall be paid for by permittee. Such repairs as are required, shall be made or be caused to be made by the City of Whittier and billed to such permittee who shall pay the same upon receipt of a statement of the cost of such repair, replacement or reconstruction of the damaged substructures or appurtenances. In cutting curbs, if the curb is cracked from the top drain top of curb, the entire curb to the footing must be removed and replaced.
16. All utilities shall be placed with a minimum of 42" of cover, measured from the flow line of the gutter on the low side of the street.
17. All construction work between the curb line and property line shall be constructed in conformance to Standard Plans and Specifications approved the City of Whittier Ordinance No. 1901.
18. Form inspection will be required prior to placement of concrete and at the completion of work. At least 24 hours notice will be required before inspection can be provided. Call (562) 464-3510.
19. Curbs shall be core drilled or a minimum of two (2) feet of curb removed (saw-cut required). Two (2) number 3 reinforcing bars shall be placed of the top of the pipe drain.
20. Specific provisions and conditions may be appended to each permit.
21. This permit does not allow work on private property.
22. Insurance requirements are as specified by the Director of Public Works.
23. Permittee shall comply with the Waste Discharge Requirements of the National Pollutant Discharge Elimination System (NPDES) Permit for Municipal Storm Water and Urban Runoff Discharges in the County of Los Angeles (Order No. 01-182, NPDES Permit No. CAS004001). Best Management Practice (BMP) shall be used to prevent storm water pollution. A copy of said NPDES permit and BMP(s) is available to interested parties upon request at the Public Works Department, 13230 Penn Street, Whittier, California.

CITY OF WHITTIER
EXCAVATION/CONSTRUCTION PERMIT
(562) 464-3510

Name Ron Halpern Date July 7, 2005
Mailing Address 1400 N. Harbor Blvd., Ste. 700 Phone 714-278-0992 ext. 3052
City Fullerton, CA 92835
Job Address 12482 Putnam Street Plan No. _____

Permission is hereby granted, pursuant to the Whittier Municipal Code, to excavate and/or construct in the City right-of-way as follows: Drill and install a groundwater monitoring well approved by City Council on 4/26/05 for the purposes of monitoring groundwater quality associated with the Omega Chemical site. Once installed (in the street), the well will be enclosed in a traffic-rated well box flush with the surface. Traffic control per W.A.T.C.H.

***Call UNDERGROUND SERVICE ALERT at 1-800-422-4133, two (2) working days BEFORE you dig.**

PERMIT FEES

_____ Driveways _____	\$ -
_____ Sidewalks _____	\$ -
_____ Curbs, gutters and/or monolithic curbs and gutters _____	\$ -
_____ Excavation in Public Right-of-Way _____	\$ -
_____ Material storage in Public right-of-way _____	\$ -
_____ Temporary fencing in Public Right-of Way _____	\$ -
_____ Curb Drains _____	\$ -
_____ Street Cut _____	\$ -
_____ Street Closure _____	\$ -
_____ Sprinkler system in parkway _____	\$ -
_____ Canopies _____	\$ -
_____ Rider _____	\$ -
_____ Penalty _____	\$ -
_____ Slurry Seal Deposit: Account No. _____	\$ -
<u>X</u> Other: <u>No fee permit</u>	\$ -
TOTAL	NO FEE

A copy of this permit must be kept on the job site during construction and until final inspection has been completed.

This permit expires on August 12, 2005 By David Collosi

NOTICE OF COMPLETION

Return to:
Director of Public Works
City of Whittier
13230 Penn Street
Whittier, CA 90602-1772

DATE: 7/7/05

NO. 7977

Notice is hereby given that the work allowed by the permit number noted hereon has been completed in the manner provided in said permit and all obstructions, materials and debris have been removed.

Signed: Ron Halpern

THIS NOTICE MUST BE RETURNED WITHIN 10 DAYS OF COMPLETION

CITY OF WHITTIER

APPLICATION FOR PERMIT TO EXCAVATE/CONSTRUCT

PLEASE PRINT OR TYPE:

Name RON HALPERNMailing Address 1400 N. Harbor Blvd Ste 700City Fullerton Zip 92835Job Address 12482 Putnam St WhittierDate 6/27/05Phone (714) 278-0992 x3052

Plan No. _____

hereby makes an application for permission to make the following excavation under the provisions of City ordinance to-wit:

Drill and install a groundwater monitoring well for the purposes of
monitoring groundwater quality associated with the Omega Chemical Site.
Once installed (in the street), the well will be enclosed in a traffic-rated well box flush
with the surface. Traffic Control per WATCH.

This applicant hereby agrees that the above-described work shall be commenced within 5 days from the date of the permit issued hereunder and shall be diligently and continuously pursued to completion, and that the excavation made under said permit shall be refilled in the manner provided for in said ordinance, and all construction materials and debris removed within 21 days from date upon which excavation is commenced or said street, alley or public place is first obstructed by said applicant, or that said excavation may be refilled in such manner, and any construction materials and debris may be removed by the Public Works Department at the expense of such applicant.

FEE SCHEDULE

Residential Driveway Permit/Inspection - \$194 each	_____
Commercial Driveway Permit/Inspection - \$479 each	_____
Sidewalk Permit/Inspection - \$123.00 plus \$.10 per square foot for area in excess of 300 sq. ft.	_____
Curb, gutter and/or monolithic curb and gutter - \$113.00 plus \$.20 per lineal foot in excess of 50 ft.	_____
Residential Excavation in Public Right-of-Way - \$60.00	_____
Commercial Excavation in Public Right-of-Way - \$146.00	_____
Material Storage in Public Right-of-Way - \$127.00	_____
Temporary Fencing in Public Right-of-Way - \$119.00	_____
Curb Drain - \$85.00	_____
Street Cut Permit - \$119.00	_____
Street Closure - \$292.00	_____
Sprinkler System in Parkway - \$79.00	_____
Construction Canopy - \$125.00 + \$50.00 per week	_____
Rider: \$54.00	_____
Penalty: \$125.00 per item	_____
Slurry Seal Deposit: Account No. _____	_____
<input checked="" type="checkbox"/> Other: <u>No Fee permit.</u>	<u>0</u>
TOTAL	<u>0</u>

Office Use Only

Tentative Permit No. 7977
 Application received by: DC
 Field checked by: _____
 Approved by: David Collier
 General Information
 Attached: No

*This is only an application, NOT A PERMIT.
 No work shall be started prior to permit approval.*

Signed: (Constructor/Property Owner) Ronal Halpern -ARC00LS
 Address 1400 N. Harbor Blvd
 City Fullerton, CA Zip 92835
 State #/City License 57186
 Phone No. (714) 278-0992

Corporate: (720) 344-3817 630 Plaza Dr., Ste 200, Highlands Ranch, CO 80129

THIS APPLICATION CANNOT BE PROCESSED UNLESS BOTH SIDES OF THIS SHEET ARE SIGNED BY THE APPLICANT.

CITY OF WHITTIER APPLICATION FOR PERMIT TO EXCAVATE/CONSTRUCT

All tree roots encountered during excavation shall be protected in place. Under no circumstances is permittee allowed to cut, trim, shave or break any portion of the tree roots without written approval from the City.

Damages (\$500 minimum) will be assessed for any person violating this provision.

I hereby acknowledge and agree to abide by all aforementioned provisions stated in the permit and waive my right to challenge said provisions. I hereby agree that I am solely responsible for any violation resulting from the acts or actions taken by my designees, not limited to, employees, partners and/or friends in any form or cause.

Applicant Signature:

Ronald Haly

IMPORTANT

APPLICANT MUST SIGN BOTH SIDES OF THIS APPLICATION

PERMIT PROVISIONS

1. All work shall be done in accordance with the Standard Specifications for Public Works Construction, latest edition and addendum, unless otherwise specified.
 2. All traffic control shall be done in accordance with the Work Area Traffic Control Handbook, latest edition.
 3. All work authorized under this permit must be completed within the time specified therein, and unless so completed, this permit shall be void. An extension may be granted if applied for 24 hours before this permit expires.
 4. Provisions shall be made for barricades, lights and traffic control personnel to adequately protect the traveling public during construction and excavation operations. When necessary for public safety, traffic control personnel shall be on duty throughout the twenty-four (24) hours of each day. Two lanes of traffic shall remain open to the public at all times, one lane in each direction. Whenever it is necessary to direct traffic across the center of the street into oncoming traffic lanes, procedures outlined in the Work Area Traffic Control Handbook, latest edition, shall be followed and the approval of the Traffic Engineering is required.
 5. City of Whittier, Public Works Department, shall be notified at least 24 hours before start of work by phoning (562) 464-3510. Should the City Inspector find working progress prior to notification by the Permittee, work may be stopped for a period of not less than the remainder of the working day.
 6. A penalty will be charged for failure to apply for a permit prior to commencement of work.
- All work authorized under this permit must be diligently and continuously pursued so as to complete the work in as short a time as possible; and if not so pursued, this permit may be cancelled.
8. No debris or spoil shall be left in the street overnight.
 9. All of the backfill within the area of the road bed shall be of aggregate base materials only (Section 220-2.1), and shall be thoroughly pneumatically tapped in layers not to exceed 4" in depth, except that trenches in excess of 30" below the bottom of the pavement may be compacted in 8" layers or other acceptable methods. Compaction test shall be taken by the permittee when and where required by the Inspector. Densities shall meet the requirements of Section 300-4.7 and 301-1.3 of Standard Specifications and of this permit.
 10. When excavations are made in a parkway area which is landscaped, it shall be the contractor's responsibility to replace plants, shrubs and sod in a neat and workmanlike manner, leaving the area in as near its original state as possible, all to the satisfaction of the Street Maintenance Manager, Park Manager and/or Director of Public Works.
 11. All concrete shall be cut to nearest score marks with a concrete saw in the depth of 2".
 12. Repairs to Portland Cement Concrete shall be made of Portland Cement Concrete containing minimum 5.5 sacks of cement per cubic yard. Concrete pavement shall be constructed to a minimum thickness of 6", no less than the existing pavement and placed on a 4" base material. Portland Cement Concrete shall be satisfactorily cured, with Hunt's Process of equal and protected from disturbances for not less than 24 hours.
 13. All asphalt concrete may be cut with a concrete saw to a minimum depth of 2". If a concrete saw is not used, the cut must be made neatly and uniformly by an acceptable method.
- Repairs to rock and oil or asphaltic concrete pavement shall be made with plant mix resurfacing, Type I. Patches shall be a minimum of 4" and not less than existing pavement plus 1" and placed on Type A base minimum 6" thick. All edges shall be treated with a tack coat. Base course shall be 3/4" the inspector shall determine mix and top course.

PERMIT PROVISIONS (Continued)

15. The holder of any permit and any agent, servant or employee working for the said permit holder on any excavation and fill, shall inform himself and obtain all necessary information as to the existence of and location of all underground pipes, lines, manholes, wires, substructures and appurtenances of any utility. The City shall be protected by the permittee against any damage by reason of any excavation on fill. Any damage caused to such underground installations, appurtenances, or substructures, shall be paid for by permittee. Such repairs as are required, shall be made or be caused to be made by the City of Whittier and billed to such permittee who shall pay the same upon receipt of a statement of the cost of such repair, replacement or reconstruction of the damaged substructures or appurtenances. In cutting curbs, if the curb is cracked from the top drain top of curb, the entire curb to the footing must be removed and replaced.
16. All utilities shall be placed with a minimum of 42" of cover, measured from the flow line of the gutter on the low side of the street.
17. All construction work between the curb line and property line shall be constructed in conformance to Standard Plans and Specifications approved the City of Whittier Ordinance No. 1901.
18. Form inspection will be required prior to placement of concrete and at the completion of work. At least 24 hours notice will be required before inspection can be provided. Call (562) 464-3510.
19. Curbs shall be core drilled or a minimum of two (2) feet of curb removed (saw-cut required). Two (2) number 3 reinforcing bars shall be placed of the top of the pipe drain.
20. Specific provisions and conditions may be appended to each permit.
21. This permit does not allow work on private property.
22. Insurance requirements are as specified by the Director of Public Works.
23. Permittee shall comply with the Waste Discharge Requirements of the National Pollutant Discharge Elimination System (NPDES) Permit for Municipal Storm Water and Urban Runoff Discharges in the County of Los Angeles (Order No. 01-182, NPDES Permit No. CAS004001). Best Management Practice (BMP) shall be used to prevent storm water pollution. A copy of said NPDES permit and BMP(s) is available to interested parties upon request at the Public Works Department, 13230 Penn Street, Whittier, California.

CITY OF WHITTIER
APPLICATION FOR PERMIT TO EXCAVATE/CONSTRUCT

PLEASE PRINT OR TYPE:

Name RONALD HALPERN Date 4/13/2006
Mailing Address 1400 N. HARBOR BLVD, #700 Phone (714) 278-0992 (o)
City FULLERTON Zip 92835 (949) 294-1532 (c)
Job Address 11300 WASHINGTON BLVD, Unit F Plan No. _____

hereby makes an application for permission to make the following excavation under the provisions of City ordinance to-wit:

Set Pot hole, drill & install groundwater monitoring well
in front of Monitor groundwater associated with the Omega Chemical
site. Well to be enclosed in traffic-rated well box flush with surface.
Traffic control per MUTCD

This applicant hereby agrees that the above-described work shall be commenced within 2 days from the date of the permit issued hereunder and shall be diligently and continuously pursued to completion, and that the excavation made under said permit shall be refilled in the manner provided for in said ordinance, and all construction materials and debris removed within 60 days from date upon which excavation is commenced or said street, alley or public place is first obstructed by said applicant, or that said excavation may be refilled in such manner, and any construction materials and debris may be removed by the Public Works Department at the expense of such applicant.

FEE SCHEDULE

_____	Residential Driveway Permit/Inspection - \$194 each	_____
_____	Commercial Driveway Permit/Inspection - \$479 each	_____
_____	Sidewalk Permit/Inspection - \$123.00 plus \$.10 per	_____
_____	square foot for area in excess of 300 sq. ft.	_____
_____	Curb, gutter and/or monolithic curb and gutter - \$113.00	_____
_____	plus \$.20 per lineal foot in excess of 50 ft.	_____
_____	Residential Excavation in Public Right-of-Way - \$60.00	_____
_____	Commercial Excavation in Public Right-of-Way - \$146.00	_____
_____	Material Storage in Public Right-of-Way - \$127.00	_____
_____	Temporary Fencing in Public Right-of-Way - \$119.00	_____
_____	Curb Drain - \$85.00	_____
_____	Street Cut Permit - \$119.00	_____
_____	Street Closure - \$292.00	_____
_____	Sprinkler System in Parkway - \$79.00	_____
_____	Construction Canopy - \$125.00 + \$50.00 per week	_____
_____	Rider: \$54.00	_____
_____	Penalty: \$125.00 per item	_____
_____	Slurry Seal Deposit: Account No. _____	_____
<u>X</u>	Other: <u>No Fee</u>	<u>0</u>
TOTAL _____		<u>0</u>

Office Use Only

Tentative Permit No. 8305
Application received by: DR
Field checked by: _____
Approved by: Jerry Hallor
General Information
Attached: _____

*This is only an application, NOT A PERMIT.
No work shall be started prior to permit approval.*

Signed: (Constructor/Property Owner) Ronald Halpern
Address 1400 N Harbor Blvd, #700
City Fullerton Zip 92835
State #/City License 57186
Phone No. (714) 278-0992

Cosperetti (720) 344-3817 @ 630 Plaza Dr. Ste 200
Highlands Ranch, CO 80129

THIS APPLICATION CANNOT BE PROCESSED UNLESS BOTH SIDES OF THIS SHEET ARE SIGNED BY THE APPLICANT.

05-09-05 #0

SC. -- 804.00
TAL 804.00
CHECK 762.00
CHECK 42.00

ITEM 1
ICL 8497 03:27

Application for Excavation Permit

City of Santa Fe Springs
Department of Public Works - Engineering

Please print in Blue or Black ink only

X-9698

Name: ARCADIS EXM, INC. Phone: 714-278-0992

Address: 1400 N. HARBOR BL., STE. 700

City: FULLERTON Zip: 92635-4127 State: CA.

Location: VARIOUS LOCATIONS IN NE PART OF CITY STS
WITHIN THE PUBLIC R/W ONLY. NO PRIVATE PROPERTY

Purpose: OMEGA CHEMICAL REMEDIAL INVESTIGATION -
MONITORING/EXTRACTION WELLS

Starting Date: 5/15/05

City Business License No.: ARCA-014000706

Completion Date: _____

CA State License No.: _____

Representative [Signature] 5/15/05

THE ABOVE NAMED HEREBY MAKES APPLICATION FOR PERMISSION TO EXCAVATE IN THE PUBLIC HIGHWAY SUBJECT TO THE PROVISIONS REQUIRED BY SECTION 19 OF THE SANTA FE SPRINGS MUNICIPAL CODE AND ANY SPECIFIED REQUIREMENTS ATTACHED HERETO.

IN CONSIDERATION OF THE GRANTING OF THE PERMIT, IT IS AGREED BY THE APPLICANT THAT THE CITY OF SANTA FE SPRINGS AND ANY OFFICIAL OR EMPLOYEE THEREOF SHALL BE SAVED HARMLESS BY THE APPLICANT FROM ANY LIABILITY OR RESPONSIBILITY OCCURRING AS THE PROXIMATE RESULT OF ANY WORK UNDERTAKEN UNDER THE TERMS OF THIS APPLICATION AND THE PERMIT OR PERMITS WHICH MAY BE GRANTED IN RESPONSE THERETO, AND THAT ALL SAID LIABILITIES ARE HEREBY ASSUMED BY THE APPLICANT. IT IS FURTHER AGREED THAT IF ANY TANK, PIPE, CONDUIT, DUCT OR TUNNEL PLACED IN THE EXCAVATION OR OBSTRUCTION FOR WHICH THIS PERMIT IS ISSUED INTERFERES WITH THE FUTURE USE OF THE HIGHWAY BY THE GENERAL PUBLIC, THEN THE APPLICANT AND HIS SUCCESSORS OR ASSIGNS WILL AT HIS OWN EXPENSE REMOVE SUCH TANK, PIPE, CONDUIT, DUCT, OR TUNNEL, OR RELOCATE AT A LOCATION DESIGNATED BY THE DIRECTOR OF PUBLIC WORKS OF THE CITY OF SANTA FE SPRINGS.

9x85 = 762.00
Issue = 42.00
\$804

NOTIFY UNDERGROUND SERVICE

ALERT (USA) 2 DAYS PRIOR
TO STARTING WORK

1-800-422-4133

24 HOUR
NOTICE BEFORE STARTING
WORK IS REQUIRED

City of Santa Fe Springs Department of Public Works, Engineering Division Use Only

☐ Checklist Complete

Printed: 11/3/2004

Permittee

05-09-05 1CL8497
05-09-05 1CL8497

CHECK 762.00
CHECK 42.00

MISC. 804.00
05-09-05 1CL8497



infrastructure, buildings, environment, communications
630 Plaza Drive, Suite 200 • Highlands Ranch, Colorado 80129
Tel 720/344-3500 • Fax 720/344-3535

ITEM DESCRIPTION	VENDOR NO	VOUCHER NO	AMOUNT	PROJECT	ACCOUNT
Excavation Permit Fee		030714	\$42.00	CA0646.001 06	



infrastructure, buildings, environment, communications
630 Plaza Drive, Suite 200 • Highlands Ranch, Colorado 80129
Tel 720/344-3500 • Fax 720/344-3535

ITEM DESCRIPTION	VENDOR NO	VOUCHER NO	AMOUNT	PROJECT	ACCOUNT
Well Fees 9 x \$85.00		030715	\$762.00	CA0646.001 .06	

**CITY OF SANTA FE SPRINGS
BUSINESS LICENSE**

The person, firm or corporation below named is hereby granted this license for the purpose of engaging in, carrying on or conducting, in the City of Santa Fe Springs, California, the business, trade, calling, profession, exhibition or occupation described in the application for this license; for the period indicated, as provided by Municipal Code, Section 35.073.

Susan Bergeron Vance
Susan Bergeron-Vance, Director of Finance and Administrative Services

630 PLAZA DR SUITE 200, HIGHLANDS RANCH CO 80129

BUSINESS ADDRESS IF DIFFERENT FROM MAILING ADDRESS

MAILING ADDRESS

**ARCADIS G & M INC
1400 N HARBOR BLVD, SUITE 700
FULLERTON CA 92835**

DISPLAY THIS COPY

NEW EXPIRATION DATE
MAY 31 2006
LICENSE NUMBER
ARCA-014000700
BUSINESS TELEPHONE
714 278 0992
FEDERAL I.D. #
57-0373224

05-09-05 150.00
05-09-05 30.00
BUS 06 150.00
BUS 30 30.00
1CL8501
1CL8501

STEP 1 TAX COMPUTATION (See reverse side of this form for definitions and explanations)

TAX CODE 07 GENERAL CONTRACTOR

LICENSE TAX	\$150.00
Processing Fee:	\$ 30.00
Subtotal:	\$180.00
LIC#571846 TYPE:A HAZ EXP:03-31-2007	
Penalty:	
TOTAL AMOUNT DUE	\$180.00

CITY INFORMATION

- City Hall** 11710 E. Telegraph Road • 868-0511 • FAX 868-7112 • www.santafesprings.org
Hours: M - F, 7:30 a.m. to 5:30 p.m. (Closed every other Friday)
- Business LicensesExt. 7527
 - BuildingExt. 7560
 - Child Care Services.....Ext. 3501
 - City Council.....Ext. 7511
 - City Manager.....Ext. 7510
 - Community Services Administrative Offices.....Ext. 7570
 - EngineeringExt. 7540
 - Finance & Administrative Services.....Ext. 7520
 - Planning and Development.....Ext. 7550
 - TransportationExt. 7572
 - Water BillingExt. 7333
 - ZoningExt. 7550
- Fire Department Headquarters** 11300 Greenstone Avenue • 944-9713 • FAX 941-1817 • e-mail: fire@santafesprings.org
Hours: M - F, 7:00 a.m. to 6:00 p.m.
- Library Services** 11700 E. Telegraph Road • 868-7738 • FAX 929-3680 • e-mail: library@santafesprings.org
Hours: M - Th, 10:00 a.m. to 9:00 p.m., Fri. 10:00 a.m. to 6:00 p.m., Sat. 10:00 a.m. to 5:00 p.m.
- Police Services** 11576 Telegraph Road • 409-1850 • FAX 409-1854 • e-mail: policeservices@santafesprings.org
Hours: M - Fri, 8:00 a.m. to 11:00 p.m., Sat & Sun 10 a.m. to 5 p.m. • 24-Hour Telephone Access
- Public Works Maintenance (Municipal Services Yard)** 12636 Emmens Way • 868-0511 • FAX 946-9165 • e-mail: publicworks@santafesprings.org
Hours: M - F, 7:30 a.m. to 5:30 p.m.
- Recreation Services** 11740 E. Telegraph Road • 863-4896 • FAX 863-4231 • e-mail: recreation@santafesprings.org
Hours: M - Th, 9:00 a.m. to 9:00 p.m., Fri. 9:00 a.m. to 5:00 p.m.
- Family & Human Services** 9255 Pioneer Boulevard • 692-0261 • FAX 695-8620 • e-mail: familyandhumanservices@santafesprings.org
Hours: M - F, 8:00 a.m. to 6:00 p.m.

Submitted
2/14/05

**SERVICE APPLICATION REQUEST AND FEE COLLECTION
COUNTY OF LOS ANGELES – DEPARTMENT OF HEALTH SERVICES'
PUBLIC HEALTH PROGRAMS – ENVIRONMENTAL HEALTH**

SERVICE REQUEST APPLICATION

INSTRUCTIONS

1. Check the TYPE OF SERVICE requested and attach the required non-refundable fee to the application. Make the money order or check payable to LOS ANGELES COUNTY TREASURER, DO NOT SEND CASH. This application is nontransferable.

FEE REQUIRED*

13 X 176 = 2288-

TYPE OF SERVICE



MONITORING WELL CONSTRUCTION/DECOMMISSIONING Complete and attach a Non-Production Well -Well Permit Application



WELL CONSTRUCTION, RENOVATION OR DECOMMISSIONING PERMIT Complete and attach a Production Well-Well Permit Application



PRIVATE SEWAGE DISPOSAL SYSTEM CONSTRUCTION PERMIT



PRIVATE SEWAGE DISPOSAL RENOVATION / EXPANSION



INSPECTION OF MOUNTAIN CABIN SITE as required by the United States Forest Service



SEPTIC TANK REPLACEMENT



INSPECTION OF EXISTING PRIVATE SEWAGE SYSTEM



WATER SUPPLY TEST AND CERTIFICATION as required by U.S. Department of Agriculture

* Refer to Schedule of Fees for the current fiscal year. Field personnel cannot accept fees.

2. Check with the Contact Office stamped below for requirements or information
3. Deliver the completed application, money order or check with the forms indicated to:

County of Los Angeles

Mountain and Rural Program / Water, Sewage, & Subdivision Program

5050 Commerce Drive, Baldwin Park, CA 91706

(626) 430-5380 FAX (626) 813-3016

4. Please contact office noted above or office indicated below, after you have received your receipt, to request an inspection.

Omega Chemical Superfund Site

Operable Unit #2

San Felipe Springs + Whittier, CA

see well locations table attached

Service/ Job Location Address

City

Zip

Assessor Map Book

Page

Parcel #

Date

USEPA c/o Christopher Lichens 75 Hawthorne St. Mail Stop SFD-7-4 San Francisco, CA 94105

Owner / Applicant Name

Address/Zip

Phone No.

ARCADIS

1400 N. Harbor Blvd, Ste 700 Fullerton, CA 92835

Contractor's Name

Address/Zip

Phone No.

Co. Engineer Plan Check No. _____ Tract no. _____ Lot No. _____ No. Bedrooms _____ Fixture Unit Count _____

(Complete the line above for Private Sewage Disposal System Construction or Renovation Application)

CONTACT OFFICE

DEPARTMENT STAMP

FEE FOR SERVICES EFFECTIVE OCTOBER 3, 2003

<u>\$176.00</u>	-	MONITORING WELL CONSTRUCTION/DESTRUCTION (Including cone penetrometer or hydropunch for ground water sampling)
<u>\$288.00</u>	-	WELL CONSTRUCTION, RENOVATION OR DESTRUCTION PERMIT (I.e., municipal, domestic, irrigation, industrial, cathodic, ground water injection)
<u>\$692.00</u>	-	PRIVATE SEWAGE DISPOSAL SYSTEM CONSTRUCTION PERMIT
<u>\$635.00</u>	-	PRIVATE SEWAGE DISPOSAL SYSTEM RENOVATION/EXPANSION
<u>\$322.00</u>	-	TANK REPLACEMENT
<u>\$50.50/hr</u>	-	INSPECTION OF MOUNTAIN CABIN SITE
<u>\$322.00</u>	-	INSPECTION OF EXISTING PRIVATE SEWAGE SYSTEM
<u>\$176.00</u>	-	WATER SUPPLY TEST AND CERTIFICATION

As of July 1, 1995 no permits will be required for Soil Borings inadvertently going to ground water as long as they are not intended to sample ground water. No permit will be required for Vapor Extraction or Bio Vent Wells not extending into ground water. Since a permit is not required, there will not be any fees due for these projects. Permits are now required from the Health Department for groundwater injection wells.

WELL PERMIT APPLICATION - NON-PRODUCTION WELLS
 WATER & SEWAGE / MOUNTAIN & RURAL PROGRAMS - ENVIRONMENTAL HEALTH DIVISION
 3050 COMMERCE DRIVE, BALDWIN PARK, CA 91706 (626) 430-5380 FAX (626) 813-3016

DATE: 2/3/05

<input checked="" type="checkbox"/> NEW WELL CONSTRUCTION <i>EW1</i>	<input type="checkbox"/> MONITORING	<input type="checkbox"/> HEAT EXCHANGE
<input type="checkbox"/> RECONSTRUCTION OR RENOVATION	<input type="checkbox"/> CATHODIC	<input type="checkbox"/> OTHER (Specify):
<input type="checkbox"/> DECOMMISSIONING	<input type="checkbox"/> INJECTION	
<input type="checkbox"/> OTHER:	<input checked="" type="checkbox"/> EXTRACTION	

SITE ADDRESS <i>On Burke St., east of Sorenson Ave. Santa Fe Springs</i>		ZIP CODE <i>90670</i>
<i>about 30 ft east of MW08 well cluster (near 12012 Burke St.)</i>		
Towship	Range	Section
		Map Book Page/ Grid <i>LA 70-7/A2</i>
NO. OF WELLS IN EACH PARCEL: <i>1</i>		Attach site map with well locations <i>Lat. 33.961967 / Long. -118.060341</i>

Type and Size of Production Casing	<i>4 inch dia. SCH 40</i>
Sanitary / Annular Sealing Material	<i>95% cement, 5% bentonite slurry pellets if below water table</i>
Depth of Sanitary / Annular Seal	<i>0-55 A</i>
Conductor Casing Seal	<i>N/A</i>

Company	<i>ARCA DIS-GEM</i>
Contact Person	<i>Ronald Halpern</i>
Address	<i>1400 N. Harbor Blvd, Ste 700</i>
City, State Zip	<i>Fullerton, CA 92835</i>
Telephone	<i>(714) 278-0992 x3052</i>

IF WELL AND GEOLOGIC CONDITIONS ENCOUNTERED IN THE FIELD ARE FOUND TO DIFFER FROM THE SCOPE OF WORK PRESENTED TO THIS OFFICE, WORK PLAN MODIFICATIONS MAY BE REQUIRED

Well Owner	<i>US EPA c/o Christopher Lichens</i>
Address	<i>75 Hawthorne St. Mail Stop SFD-7-4</i>
City / Zip Code	<i>San Francisco / 94105 94105</i>
Telephone	<i>(415) 972-3149</i>
Well Driller	<i>Water Development Corporation</i>
Address	<i>5566 Arrow Hwy</i>
City / Zip Code	<i>Montclair / 91763</i>
C-57 License No.	<i>28 3326</i>
Telephone	<i>(909) 931-4014</i>

DISPOSITION OF PERMIT (Department Use Only)
 THIS PERMIT IS CONSIDERED COMPLETE WHEN THE WORK PLAN IS APPROVED AND WHEN THE WELL COMPLETION LOG IS RECEIVED. NO WELL CONSTRUCTION OR DECOMMISSIONING CAN BE INITIATED WITHOUT THE WORK PLAN APPROVAL FROM THIS DEPARTMENT.

Date *3/8/05* REHS

Conditions

Well Depth log / records	
Method of Well Assessment	
Depth and Number of Perforations	
Type of Perforator Size of Perforations	
Type and Amount of Sealant	
Method of Upper Seal Pressure Application	

I hereby agree to comply in every respect with all the regulations of the County Environmental Health Division and with all ordinances and laws of the County of Los Angeles and the State of California pertaining to well construction, reconstruction and decommissioning. Upon completion of the well and within thirty days thereafter, I will furnish the Environmental Health office with a completion log of the well giving date drilled, depth of the well, perforations in the casing, and any other data deemed necessary by County Environmental Health Division.

Ronald Halpern
 Applicant Signature

Applicant Name: (PRINT) *Ronald Halpern*
 Telephone: *(714) 278-0992 ex 3052*

Date REHS

Date REHS

Job 957;Page 13/13

PM 12

WELL PERMIT APPLICATION - NON-PRODUCTION WELLS

WATER & SEWAGE / MOUNTAIN & RURAL PROGRAMS - ENVIRONMENTAL HEALTH DIVISION
5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706 (626) 430-5380 FAX (626) 813-3016

DATE: 2/3/05

<input checked="" type="checkbox"/> NEW WELL CONSTRUCTION <i>PMW 12</i> <input type="checkbox"/> RECONSTRUCTION OR RENOVATION <input type="checkbox"/> DECOMMISSIONING <input type="checkbox"/> OTHER: _____	<input checked="" type="checkbox"/> MONITORING <input type="checkbox"/> CATHODIC <input type="checkbox"/> INJECTION <input type="checkbox"/> EXTRACTION	<input type="checkbox"/> HEAT EXCHANGE <input type="checkbox"/> OTHER (Specify): _____
---	--	---

SITE ADDRESS 12438 Putnam		CITY Whittier	ZIP CODE 90602	
Township	Range	Section	Map Book Page/ Grid 207, C-1	Thomas Guide
NO. OF WELLS IN EACH PARCEL: 1		Attach site map with well locations lat. 33.72027/long. -118.046844		

Type and Size of Production Casing	4" dia. SCH 40 PVC
Sanitary / Annular Sealing Material	95% cement, 5% bentonite, slurry; pellets if below water table
Depth of Sanitary / Annular Seal	0-65'
Conductor Casing Seal	N/A

Company	Arcadis G & M
Contact Person	Ron Halpern
Address	1400 N. Harbor Blvd., Ste 700
City, State Zip	Fullerton, CA 92835
Telephone	(714) 278-0992 x 3052

Well Owner	U.S. EPA c/o Christopher Lichens
Address	75 Hawthorne St. Mail Stop SFD - 7-9
City / Zip Code	San Francisco / 94105
Telephone	(415) 972-3149
Well Driller	Water Development Corporation
Address	5566 Arrow Hwy
City / Zip Code	Montclair / 91763
C-57 License No.	283326
Telephone	(909) 931-4014

IF WELL AND GEOLOGIC CONDITIONS ENCOUNTERED IN THE FIELD ARE FOUND TO DIFFER FROM THE SCOPE OF WORK PRESENTED TO THIS OFFICE, WORK PLAN MODIFICATIONS MAY BE REQUIRED

DISPOSITION OF PERMIT (Department Use Only)
THIS PERMIT IS CONSIDERED COMPLETE WHEN THE WORK PLAN IS
APPROVED AND WHEN THE WELL COMPLETION LOG IS RECEIVED. NO WELL
CONSTRUCTION OR DECOMMISSIONING CAN BE INITIATED WITHOUT THE
WORK PLAN APPROVAL FROM THIS DEPARTMENT.

Well Depth log / records	
Method of Well Assessment	
Depth and Number of Perforations	
Type of Perforator Size of Perforations	
Type and Amount of Sealant	
Method of Upper Seal Pressure Application	

Date 3/15/15

[illegible]

Date	REHS
------	------

Date	REHS
------	------

I hereby agree to comply in every respect with all the regulations of the County Environmental Health Division and with all ordinances and laws of the County of Los Angeles and the State of California pertaining to well construction, reconstruction and decommissioning. Upon completion of the well and within thirty days thereafter, I will furnish the Environmental Health office with a completion log of the well giving date drilled, depth of the well, perforations in the casing, and any other data deemed necessary by County Environmental Health Division.

[Signature]
Applicant's Signature

Applicant Name: (PRINT) Ronald Halperin
Telephone: (714) 278-4992 x3052

PMW13

WELL PERMIT APPLICATION - NON-PRODUCTION WELLS
 WATER & SEWAGE / MOUNTAIN & RURAL PROGRAMS - ENVIRONMENTAL HEALTH DIVISION
 5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706 (626) 430-5380 FAX (626) 813-3016

DATE: 2/3/05

<input checked="" type="checkbox"/> NEW WELL CONSTRUCTION <i>PMW13A,B</i>	<input checked="" type="checkbox"/> MONITORING	<input type="checkbox"/> HEAT EXCHANGE
<input type="checkbox"/> RECONSTRUCTION OR RENOVATION	<input type="checkbox"/> CATHODIC	<input type="checkbox"/> OTHER (Specify):
<input type="checkbox"/> DECOMMISSIONING	<input type="checkbox"/> INJECTION	
<input type="checkbox"/> OTHER:	<input type="checkbox"/> EXTRACTION	

SITE ADDRESS <i>12460 Putnam St</i>		CITY <i>Whittier</i>	ZIP CODE <i>90602</i>
Township	Range	Section	Map Book Page/ Cgd <i>LA 701 B1-C1</i> <i>LA 677/ B7-C7</i>
NO. OF WELLS IN EACH PARCEL: <i>1 (Dual Wells)</i> <i>(12460 Putnam St)</i>		Attach site map with well locations <i>Lat 33.969711 / Long -118.04028</i>	

Type and Size of Production Casing	<i>2-inch diam SCH 80 PVC</i>
Sanitary / Annular Sealing Material	<i>95% cement 5% Benseal</i>
Depth of Sanitary / Annular Seal	<i>0-65, 0-110</i>
Conductor Casing Seal	<i>NA</i>

Company	<i>ARCADIS</i>
Contact Person	<i>Ronald Halpern</i>
Address	<i>1400 N. Harbor Blvd, Ste 700</i>
City, State Zip	<i>Fullerton, CA 92835</i>
Telephone	<i>(714) 278-0992 x 3052</i>

IF WELL AND GEOLOGIC CONDITIONS ENCOUNTERED IN THE FIELD ARE FOUND TO DIFFER FROM THE SCOPE OF WORK PRESENTED TO THIS OFFICE, WORK PLAN MODIFICATIONS MAY BE REQUIRED

Well Owner	<i>USEPA Region 9 c/o Christopher Lichen</i>
Address	<i>75 Hawthorn St. Chulstop SED-7-9</i>
City / Zip Code	<i>San Francisco, CA 94105</i>
Telephone	<i>(415) 972-3149</i>
Well Driller	<i>Water Development Corp</i>
Address	<i>5566 Arrow Hwy</i>
City / Zip Code	<i>Montclair, CA 91763</i>
C-57 License No.	<i>283326</i>
Telephone	<i>(907) 931-4014</i>

DISPOSITION OF PERMIT (Department Use Only)
 THIS PERMIT IS CONSIDERED COMPLETE WHEN THE WORK PLAN IS APPROVED AND WHEN THE WELL COMPLETION LOG IS RECEIVED. NO WELL CONSTRUCTION OR DECOMMISSIONING CAN BE INITIATED WITHOUT THE WORK PLAN APPROVAL FROM THIS DEPARTMENT.

Date *3/18/05* REHS *[Signature]*

Conditions

Well Depth log / records	
Method of Well Assessment	
Depth and Number of Perforations	
Type of Perforator Size of Perforations	
Type and Amount of Sealant	
Method of Upper Seal Pressure Application	

I hereby agree to comply in every respect with all the regulations of the County Environmental Health Division and with all ordinances and laws of the County of Los Angeles and the State of California pertaining to well construction, reconstruction and decommissioning. Upon completion of the well and within thirty days thereafter, I will furnish the Environmental Health office with a completion log of the well giving date drilled, depth of the well, perforations in the casing, and any other data deemed necessary by County Environmental Health Division.

Ronald Halpern
 Applicant's Signature

Applicant Name (PRINT) *Ronald Halpern*
 Telephone *(714) 278-0992 x 3052*

Date REHS

Date REHS

WELL PERMIT APPLICATION - NON-PRODUCTION WELLS
 WATER & SEWAGE / MOUNTAIN & RURAL PROGRAMS - ENVIRONMENTAL HEALTH DIVISION
 5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706 (626) 430-5380 FAX (626) 813-3016

DATE: 2/3/05

<input checked="" type="checkbox"/> NEW WELL CONSTRUCTION <i>PMW14</i>	<input checked="" type="checkbox"/> MONITORING	<input type="checkbox"/> HEAT EXCHANGE
<input type="checkbox"/> RECONSTRUCTION OR RENOVATION	<input type="checkbox"/> CATHODIC	<input type="checkbox"/> OTHER (Specify):
<input type="checkbox"/> DECOMMISSIONING	<input type="checkbox"/> INJECTION	
<input type="checkbox"/> OTHER:	<input type="checkbox"/> EXTRACTION	

SITE ADDRESS <i>On Washington Blvd. about 250 ft. west of intersection with Lambert Rd.</i>		CITY <i>Whittier</i>	ZIP CODE <i>90606</i>
Township	Range	Section	Map Book Page/ Grid <i>Thomas Guide P. 707 B-1</i>
NO. OF WELLS IN EACH PARCEL: <i>1</i>		Attach site map with well locations <i>Lot. 33.967197 / Long. -118.0991</i>	

Type and Size of Production Casing	<i>4 inch dia. SCH 40 PVC</i>
Sanitary / Annular Sealing Material	<i>95% cement, 5% bentonite slurry; pellets if below water table</i>
Depth of Sanitary / Annular Seal	<i>0-45 ft.</i>
Conductor Casing Seal	<i>N/A</i>

Company	<i>Arcadis G & M</i>
Contact Person	<i>Ron Halpern</i>
Address	<i>1400 N. Harbor Blvd., Ste 700</i>
City, State Zip	<i>Fullerton, CA 92835</i>
Telephone	<i>(714) 278-0992 x 3052</i>

IF WELL AND GEOLOGIC CONDITIONS ENCOUNTERED IN THE FIELD ARE FOUND TO DIFFER FROM THE SCOPE OF WORK PRESENTED TO THIS OFFICE, WORK PLAN MODIFICATIONS MAY BE REQUIRED

DISPOSITION OF PERMIT (Department Use Only)
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Well Owner	<i>U.S. EPA c/o Christopher Lichens</i>
Address	<i>75 Hawthorne St. Mail Stop SFD-7-4</i>
City / Zip Code	<i>San Francisco / 94105</i>
Telephone	<i>(415) 972-3149</i>
Well Driller	<i>Water Development Corporation</i>
Address	<i>5566 Arrow Hwy</i>
City / Zip Code	<i>Montclair / 91763</i>
C-37 License No.	<i>283326</i>
Telephone	<i>(909) 931-4014</i>

Date	<i>3/8/05</i>	REHS
Conditions		

Well Depth log / records	
Method of Well Assessment	
Depth and Number of Perforations	
Type of Perforator Size of Perforations	
Type and Amount of Sealant	
Method of Upper Seal Pressure Application	

I hereby agree to comply in every respect with all the regulations of the County Environmental Health Division and with all ordinances and laws of the County of Los Angeles and the State of California pertaining to well construction, reconstruction and decommissioning. Upon completion of the well and within thirty days thereafter, I will furnish the Environmental Health office with a completion log of the well giving date drilled, depth of the well, perforations in the casing, and any other data deemed necessary by County Environmental Health Division.

Ronald Halpern
 Applicant Signature

Applicant Name: (PRINT) *Ronald Halpern*
 Telephone: *(714) 278-0992 x 3052*

Date	REHS
Date	REHS

PMW 16

WELL PERMIT APPLICATION - NON-PRODUCTION WELLS
 WATER & SEWAGE / MOUNTAIN & RURAL PROGRAMS - ENVIRONMENTAL HEALTH DIVISION
 5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706 (626) 430-5380 FAX (626) 813-3016

DATE: 2/3/05

<input checked="" type="checkbox"/> NEW WELL CONSTRUCTION PMW 16A, B, C	<input checked="" type="checkbox"/> MONITORING	<input type="checkbox"/> HEAT EXCHANGE
<input type="checkbox"/> RECONSTRUCTION OR RENOVATION	<input type="checkbox"/> CATHODIC	<input type="checkbox"/> OTHER (Specify):
<input type="checkbox"/> DECOMMISSIONING	<input type="checkbox"/> INJECTION	
<input type="checkbox"/> OTHER:	<input type="checkbox"/> EXTRACTION	

SITE ADDRESS On Altamar Place, about 310 ft. CITY Santa Fe Springs southeast of Dine Rd. (near 9046 Dine Rd.)		ZIP CODE 90670	
Township	Range	Section	Map Book Page/ Grid LA 706/52
NO. OF WELLS IN EACH PARCEL: 1 (Triple-nested cluster well)		Attach site map with well locations Lat. 33.956223 / Long. -118.065605	

Type and Size of Production Casing	Triple-nested 2 in. dia. SCH 80 PVC
Sanitary / Annular Sealing Material	95% cement, 5% bentonite slurry; 1:1 bentonite: sand seal - hydraulic between screen intervals
Depth of Sanitary / Annular Seal	0-45 ft., 0-95, 0-165
Conductor Casing Seal	N/A

Company	Arcadis G & M
Contact Person	Ron Halpern
Address	1400 N. Harbor Blvd., Ste 700
City, State Zip	Fullerton, CA 92835
Telephone	(714) 278-0992 x 3052

Well Owner	U.S. EPA c/o Christopher Lichens
Address	75 Hawthorne St. Mail Stop SFD-7-4
City / Zip Code	San Francisco / 94105
Telephone	(415) 972-3149
Well Driller	Water Development Corporation
Address	55066 Arrow Hwy
City / Zip Code	Montclair / 91763
C-37 License No.	283326
Telephone	(909) 931-4014

IF WELL AND GEOLOGIC CONDITIONS ENCOUNTERED IN THE FIELD ARE FOUND TO DIFFER FROM THE SCOPE OF WORK PRESENTED TO THIS OFFICE, WORK PLAN MODIFICATIONS MAY BE REQUIRED

DISPOSITION OF PERMIT (Department Use Only)
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Date 3/3/05 REHS

Conditions

Well Depth log / records	
Method of Well Assessment	
Depth and Number of Perforations	
Type of Perforator	
Size of Perforations	
Type and Amount of Sealant	
Method of Upper Seal Pressure Application	

I hereby agree to comply in every respect with all the regulations of the County Environmental Health Division and with all ordinances and laws of the County of Los Angeles and the State of California pertaining to well construction, reconstruction and decommissioning. Upon completion of the well and within thirty days thereafter, I will furnish the Environmental Health office with a completion log of the well giving date drilled, depth of the well, perforations in the casing, and any other data deemed necessary by County Environmental Health Division.


 Applicant's Signature

Applicant Name: (PRINT) Ronald Halpern
 Telephone: (714) 278-0992 x 3052

Date REHS

Date REHS

PMW 17

WELL PERMIT APPLICATION

NON-PRODUCTION WELLS

WATER & SEWAGE / MOUNTAIN & RURAL PROGRAMS - ENVIRONMENTAL HEALTH DIVISION
5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706 (626) 430-3380 FAX (626) 813-3016

DATE: 2/3/05

<input checked="" type="checkbox"/> NEW WELL CONSTRUCTION PMW 17A, B, C	<input checked="" type="checkbox"/> MONITORING	<input type="checkbox"/> HEAT EXCHANGE
<input type="checkbox"/> RECONSTRUCTION OR RENOVATION	<input type="checkbox"/> CATHODIC	<input type="checkbox"/> OTHER (Specify):
<input type="checkbox"/> DECOMMISSIONING	<input type="checkbox"/> INJECTION	
<input type="checkbox"/> OTHER:	<input type="checkbox"/> EXTRACTION	

SITE ADDRESS In the southeast-bound right lane, City Santa Fe Springs about 250 ft. southeast of the intersection of Pike Dr. and Pacific St. (near 12005 Pike St.)		ZIP CODE 90670
Township	Range	Section
NO. OF WELLS IN EACH PARCEL: 1 (Triple-nested cluster well)		Map Book Page/ Grid LM 706/J3
Attach site map with well locations		Lat. 33.953194 / Long. -118.068703

Type and Size of Production Casing	2 inch dia. SCH 80
Sanitary / Annular Sealing Material	95% cement, 5% bentonite slurry; 111 bentonite sand 14-hydrate between them
Depth of Sanitary / Annular Seal	0-45 ft; 0-95, 0-165
Conductor Casing Seal	N/A

Company	Arcadis G & M
Contact Person	Ron Halpern
Address	1400 N. Harbor Blvd., Ste 700
City, State Zip	Fullerton, CA 92835
Telephone	(714) 278-0992 x 3052

IF WELL AND GEOLOGIC CONDITIONS ENCOUNTERED IN THE FIELD ARE FOUND TO DIFFER FROM THE SCOPE OF WORK PRESENTED TO THIS OFFICE, WORK PLAN MODIFICATIONS MAY BE REQUIRED

DISPOSITION OF PERMIT (Department Use Only)
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Well Owner	U.S. EPA c/o Christopher Lichens
Address	75 Hawthorne St. Mail Stop SFD-7-4
City / Zip Code	San Francisco / 94105
Telephone	(415) 972-3499
Well Driller	Water Development Corporation
Address	5566 Arrow Hwy
City / Zip Code	Montclair / 91763
C-57 License No.	283326
Telephone	(909) 931-4014

Date	3/8/05	REHS
Conditions		

Well Depth log / records	
Method of Well Assessment	
Depth and Number of Perforations	
Type of Perforator Size of Perforations	
Type and Amount of Sealant	
Method of Upper Seal Pressure Application	

I hereby agree to comply in every respect with all the regulations of the County Environmental Health Division and with all ordinances and laws of the County of Los Angeles and the State of California pertaining to well construction, reconstruction and decommissioning. Upon completion of the well and within thirty days thereafter, I will furnish the Environmental Health office with a completion log of the well giving date drilled, depth of the well, perforations in the casing, and any other data deemed necessary by County Environmental Health Division.

Ronald Halpern
Applicant's Signature

Applicant Name (PRINT) Ronald Halpern, RC
Telephone: (714) 278-0992 x 3052

Date	REHS
Date	REHS

PMW 18

WELL PERMIT APPLICATION - NON-PRODUCTION WELLS
 WATER & SEWAGE / MOUNTAIN & RURAL PROGRAMS - ENVIRONMENTAL HEALTH DIVISION
 5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706 (626) 430-5380 FAX (626) 813-3016

DATE: 2/3/05

<input checked="" type="checkbox"/> NEW WELL CONSTRUCTION PMW 18 A, B, C	<input checked="" type="checkbox"/> MONITORING	<input type="checkbox"/> HEAT EXCHANGE
<input type="checkbox"/> RECONSTRUCTION OR RENOVATION	<input type="checkbox"/> CATHODIC	<input type="checkbox"/> OTHER (Specify):
<input type="checkbox"/> DECOMMISSIONING	<input type="checkbox"/> INJECTION	
<input type="checkbox"/> OTHER:	<input type="checkbox"/> EXTRACTION	

SITE ADDRESS In the northeast bound right lane, City Santa Fe Springs		ZIP CODE 90670
of Santa Fe Springs Rd., just southwest of the intersection with Ann Street (near 9400 Santa Fe Springs Rd.)		
Township	Range	Section
		Map Book Page/ Grid LA 787 / A3 / B3
NO. OF WELLS IN EACH PARCEL: 1 (triple-nested water well)		Attach site map with well locations Lat. 33.954662 / Long. -118.054810

Type and Size of Production Casing	2 inch dia. SCH 80
Sanitary / Annular Sealing Material	95% cement, 5% bentonite slurry; 11 bentonite sealant in intervals
Depth of Sanitary / Annular Seal	0-55 ft, 0-105, 0-165
Conductor Casing Seal	N/A

Company	Arcadis G & M
Contact Person	Ron Halpern
Address	1400 N. Harbor Blvd., Ste 700
City, State Zip	Fullerton, CA 92835
Telephone	(714) 278-0992 x 3052

IF WELL AND GEOLOGIC CONDITIONS ENCOUNTERED IN THE FIELD ARE FOUND TO DIFFER FROM THE SCOPE OF WORK PRESENTED TO THIS OFFICE, WORK PLAN MODIFICATIONS MAY BE REQUIRED

DISPOSITION OF PERMIT (Department Use Only)
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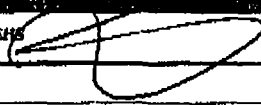
Well Owner	U.S. EPA c/o Christopher Lichens
Address	75 Hawthorne St. Mail Stop SFD-7-4
City / Zip Code	San Francisco / 94105
Telephone	(415) 972-3149
Well Driller	Water Development Corporation
Address	5566 Arrow Hwy
City / Zip Code	Montclair / 91763
C-57 License No.	283326
Telephone	(909) 931-4014

Well Depth log / records	
Method of Well Assessment	
Depth and Number of Perforations	
Type of Perforator Size of Perforations	
Type and Amount of Sealant	
Method of Upper Seal Pressure Application	

I hereby agree to comply in every respect with all the regulations of the County Environmental Health Division and with all ordinances and laws of the County of Los Angeles and the State of California pertaining to well construction, reconstruction and decommissioning. Upon completion of the well and within thirty days thereafter, I will furnish the Environmental Health office with a completion log of the well giving data drilled, depth of the well, perforations in the casing, and any other data deemed necessary by County Environmental Health Division.

Ronald Halpern
 Applicant's Signature

Applicant Name: (PRINT) Ronald Halpern
 Telephone: (714) 278-0992 x 3052

Date 3/8/05 REHS 

Conditions

Date REHS

Date REHS

PMW 19

WELL PERMIT APPLICATION - NON-PRODUCTION WELLS
 WATER & SEWAGE / MOUNTAIN & RURAL PROGRAMS - ENVIRONMENTAL HEALTH DIVISION
 5030 COMMERCE DRIVE, BALDWIN PARK, CA 91706 (626) 430-5380 FAX (626) 813-3016

DATE: 2/3/05

<input checked="" type="checkbox"/> NEW WELL CONSTRUCTION	<input checked="" type="checkbox"/> MONITORING	<input type="checkbox"/> HEAT EXCHANGE
<input type="checkbox"/> RECONSTRUCTION OR RENOVATION	<input type="checkbox"/> CATHODIC	<input type="checkbox"/> OTHER (Specify):
<input type="checkbox"/> DECOMMISSIONING	<input type="checkbox"/> INJECTION	
<input type="checkbox"/> OTHER:	<input type="checkbox"/> EXTRACTION	

SITE ADDRESS <u>Southbound right lane of Santa Fe Springs Rd about 485 ft south of Centraline intersection of McCann Dr. (10011 Santa Fe Springs Rd)</u>		CITY <u>near</u>	ZIP CODE <u>90670</u>
Township	Range	Section	Map Book Page / Grid <u>LA 707 / A4</u>
NO. OF WELLS IN EACH PARCEL: <u>1</u>		Attach site map with well locations <u>Lat. 33.45415/Long. -118.063497</u>	

Type and Size of Production Casing	<u>4 inch dia. SCH 40 PVC</u>
Sanitary / Annular Sealing Material	<u>95% cement, 5% bentonite slurry; pellets if below water table</u>
Depth of Sanitary / Annular Seal	<u>0 - 45 ft.</u>
Conductor Casing Seal	<u>N/A</u>

Company	<u>Arcadis G & M</u>
Contact Person	<u>Ron Halpern</u>
Address	<u>1400 N. Harbor Blvd., Ste 700</u>
City, State Zip	<u>Fullerton, CA 92835</u>
Telephone	<u>(714) 278-0992 x 3052</u>

IF WELL AND GEOLOGIC CONDITIONS ENCOUNTERED IN THE FIELD ARE FOUND TO DIFFER FROM THE SCOPE OF WORK PRESENTED TO THIS OFFICE, WORK PLAN MODIFICATIONS MAY BE REQUIRED

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Well Owner	<u>U.S. EPA c/o Christopher Lichens</u>
Address	<u>75 Hawthorne St. Mail Stop 5FD-7-4</u>
City / Zip Code	<u>San Francisco / 94105</u>
Telephone	<u>(415) 972-3145</u>
Well Driller	<u>Water Development Corporation</u>
Address	<u>5566 Arrow Hwy</u>
City / Zip Code	<u>Montclair / 91763</u>
C-37 License No.	<u>283326</u>
Telephone	<u>(909) 931-4014</u>

Well Depth log / records	
Method of Well Assessment	
Depth and Number of Perforations	
Type of Perforator Size of Perforations	
Type and Amount of Sealant	
Method of Upper Seal Pressure Application	

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Ronald Halpern
 Applicant's Signature

Applicant Name: (PRINT) Ronald Halpern
 Telephone: (714) 278-0992 x 3052

Date	<u>3/3/05</u>
Conditions	<u>[Signature]</u>
Date	REHS
Date	REHS

WELL PERMIT APPLICATION - NON-PRODUCTION WELLSWATER & SEWAGE / MOUNTAIN & RURAL PROGRAMS - ENVIRONMENTAL HEALTH DIVISION
5050 COMMERCE DRIVE, BALOWIN PARK, CA 91706 (626) 430-5380 FAX (626) 813-3016

DATE: 2/3/05

<input checked="" type="checkbox"/> NEW WELL CONSTRUCTION <i>FWW20A,B,C</i>	<input checked="" type="checkbox"/> MONITORING	<input type="checkbox"/> HEAT EXCHANGE
<input type="checkbox"/> RECONSTRUCTION OR RENOVATION	<input type="checkbox"/> CATHODIC	<input type="checkbox"/> OTHER (Specify):
<input type="checkbox"/> DECOMMISSIONING	<input type="checkbox"/> INJECTION	
<input type="checkbox"/> OTHER:	<input type="checkbox"/> EXTRACTION	

SITE ADDRESS <i>In the northbound right lane of City Santa Fe Springs</i>		ZIP CODE <i>90670</i>
<i>Heritage Park Dr. just south of Telegraph Rd. (near 12070 Telegraph Rd.)</i>		
Township	Range	Section
		Map Book Page/ Grid <i>LA 706/H4</i>
NO. OF WELLS IN EACH PARCEL: <i>1 (Triple-nest d cluster well)</i>		Attach site map with well locations <i>Lat. 33.942043/long. -118.079059</i>

Type and Size of Production Casing	<i>2 inch dia SCH 80</i>
Sanitary / Annular Sealing Material	<i>95% cement, 5% bentonite slurry; 1:1 bentonite sand will be used in intervals</i>
Depth of Sanitary / Annular Seal	<i>0-45 ft, 0-105, 0-165</i>
Conductor Casing Seal	<i>N/A</i>

Company	<i>Arcadis G + M</i>
Contact Person	<i>Ron Halpern</i>
Address	<i>1400 N. Harbor Blvd., Ste 700</i>
City, State Zip	<i>Fullerton, CA 92835</i>
Telephone	<i>(714) 278-0992 x 3052</i>

IF WELL AND GEOLOGIC CONDITIONS ENCOUNTERED IN THE FIELD ARE FOUND TO DIFFER FROM THE SCOPE OF WORK PRESENTED TO THIS OFFICE, WORK PLAN MODIFICATIONS MAY BE REQUIRED

DISPOSITION OF PERMIT (Department Use Only)
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Well Owner	<i>U.S. EPA c/o Christopher Lichens</i>
Address	<i>75 Hawthorne St. Mail Stop SFD-7-4</i>
City / Zip Code	<i>San Francisco / 94105</i>
Telephone	<i>(415) 972-3149</i>
Well Driller	<i>Water Development Corporation</i>
Address	<i>5506 Arrow Hwy</i>
City / Zip Code	<i>Montclair / 91763</i>
C-57 License No.	<i>283326</i>
Telephone	<i>(909) 931-4014</i>

Date *3/3/05* RBHS *[Signature]*
Conditions

Well Depth log / records	
Method of Well Assessment	
Depth and Number of Perforations	
Type of Perforator Size of Perforations	
Type and Amount of Sealant	
Method of Upper Seal Pressure Application	

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[Signature]
Applicant's Signature

Applicant Name: (PRINT) *Ronald Halpern, RG*
Telephone: *(714) 278-0992 x 3052*

Date	RBHS
Date	RBHS

PMW 21

WELL PERMIT APPLICATION - NON-PRODUCTION WELLS
 WATER & SEWAGE / MOUNTAIN & RURAL PROGRAMS - ENVIRONMENTAL HEALTH DIVISION
 5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706 (626) 430-5380 FAX (626) 813-3016

DATE: 2/3/05

<input checked="" type="checkbox"/> NEW WELL CONSTRUCTION	<input checked="" type="checkbox"/> MONITORING	<input type="checkbox"/> HEAT EXCHANGE
<input type="checkbox"/> RECONSTRUCTION OR RENOVATION	<input type="checkbox"/> CATHODIC	<input type="checkbox"/> OTHER (Specify):
<input type="checkbox"/> DECOMMISSIONING	<input type="checkbox"/> INJECTION	
<input type="checkbox"/> OTHER:	<input type="checkbox"/> EXTRACTION	

SITE ADDRESS <i>In the southeast bound right lane of Telegraph Rd., about 500 southeast of the intersection with Pioneer Rd. (near 11900 Telegraph Rd.)</i>		CITY		ZIP CODE <i>90670</i>
Township	Range	Section	Map Book Page/ Grid <i>LA 706 / H4</i>	
NO. OF WELLS IN EACH PARCEL: <i>1</i>		Attach site map with well locations <i>Lot. 33.944496/Long. -118.079422</i>		

Type and Size of Production Casing	<i>4 inch dia. SCH 40 PVC</i>
Sanitary / Annular Sealing Material	<i>95% cement, 5% bentonite slurry; pellets if below water table</i>
Depth of Sanitary / Annular Seal	<i>D-55 ft.</i>
Conductor Casing Seal	<i>N/A</i>

Company	<i>Arcadis G & M</i>
Contact Person	<i>Ron Halpern</i>
Address	<i>1400 N. Harbor Blvd., ste 700</i>
City, State Zip	<i>Fullerton, CA 92835</i>
Telephone	<i>(714) 278-0992 x 3052</i>

IF WELL AND GEOLOGIC CONDITIONS ENCOUNTERED IN THE FIELD ARE FOUND TO DIFFER FROM THE SCOPE OF WORK PRESENTED TO THIS OFFICE, WORK PLAN MODIFICATIONS MAY BE REQUIRED

DISPOSITION OF PERMIT (Department Use Only)
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Well Owner	<i>U.S. EPA c/o Christopher Lichens</i>
Address	<i>35 Hawthorne St. Mail Stop SFD-7-9</i>
City / Zip Code	<i>San Francisco / 94105</i>
Telephone	<i>(415) 972-3145</i>
Well Driller	<i>Water Development Corporation</i>
Address	<i>5566 Arrow Hwy</i>
City / Zip Code	<i>Montclair / 91763</i>
C-57 License No.	<i>283326</i>
Telephone	<i>(909) 931-4014</i>

Date	<i>3/3/05</i>	<i>REHS</i>
Conditions		

Well Depth log / records	
Method of Well Assessment	
Depth and Number of Perforations	
Type of Perforator Size of Perforations	
Type and Amount of Sealant	
Method of Upper Seal Pressure Application	

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Ronald Halpern
 Applicant's Signature

Applicant Name: (PRINT) *Ronald Halpern*
 Telephone: *(714) 278-0992 x 3052*

Date	<i>REHS</i>
Date	<i>REHS</i>

WELL PERMIT APPLICATION

NON-PRODUCTION WELLS

WATER & SEWAGE / MOUNTAIN & RURAL PROGRAMS - ENVIRONMENTAL HEALTH DIVISION
5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706 (626) 430-5380 FAX (626) 813-3016

DATE: 2/3/05

<input checked="" type="checkbox"/> NEW WELL CONSTRUCTION PMW 22	<input checked="" type="checkbox"/> MONITORING	<input type="checkbox"/> HEAT EXCHANGE
<input type="checkbox"/> RECONSTRUCTION OR RENOVATION	<input type="checkbox"/> CATHODIC	<input type="checkbox"/> OTHER (Specify):
<input type="checkbox"/> DECOMMISSIONING	<input type="checkbox"/> INJECTION	
<input type="checkbox"/> OTHER:	<input type="checkbox"/> EXTRACTION	

SITE ADDRESS <u>near 11500 Los Nietos Rd</u>		CITY <u>Santa Fe Springs</u>	ZIP CODE <u>90670</u>
In Southeast-bound right lane of Los Nietos Rd, about 100 feet northwest of intersection with Norwalk Blvd.			
Township	Range	Section	Map Book Page/ Grid
			<u>LA 706/H2</u>
NO. OF WELLS IN EACH PARCEL:		Attach site map with well locations <u>Lat. 33.959343 Long. -118.074211</u>	

Type and Size of Production Casing	<u>4 inch dia. SCH 40 PRC</u>
Sanitary / Annular Sealing Material	<u>95% cement, 5% bentonite slurry; pellets if below water table</u>
Depth of Sanitary / Annular Seal	<u>0 - 45 ft.</u>
Conductor Casing Seal	<u>N/A</u>

Company	<u>Arcadis G & M</u>
Contact Person	<u>Ron Halpern</u>
Address	<u>1400 N. Harbor Blvd., Ste 700</u>
City, State Zip	<u>Fullerton, CA 92835</u>
Telephone	<u>(714) 278-0992 x 3052</u>

IF WELL AND GEOLOGIC CONDITIONS ENCOUNTERED IN THE FIELD ARE FOUND TO DIFFER FROM THE SCOPE OF WORK PRESENTED TO THIS OFFICE, WORK PLAN MODIFICATIONS MAY BE REQUIRED

DISPOSITION OF PERMIT (Department Use Only)
THIS PERMIT IS CONSIDERED COMPLETE WHEN THE WORK PLAN IS APPROVED AND WHEN THE WELL COMPLETION LOG IS RECEIVED. NO WELL CONSTRUCTION OR DECOMMISSIONING CAN BE INITIATED WITHOUT THE WORK PLAN APPROVAL FROM THIS DEPARTMENT.

Well Owner	<u>U.S. EPA c/o Christopher Lichens</u>
Address	<u>75 Hawthorne St. Mail Stop 5FD-7-4</u>
City / Zip Code	<u>San Francisco / 94105</u>
Telephone	
Well Driller	<u>Water Development Corporation</u>
Address	<u>5566 Arrow Hwy</u>
City / Zip Code	<u>Montclair / 91763</u>
C-57 License No.	<u>283326</u>
Telephone	<u>(909) 931-4014</u>

Date	<u>3/18/05</u>	REHS
Conditions		

Well Depth log / records	
Method of Well Assessment	
Depth and Number of Perforations	
Type of Perforator Size of Perforations	
Type and Amount of Sealant	
Method of Upper Seal Pressure Application	

I hereby agree to comply in every respect with all the regulations of the County Environmental Health Division and with all ordinances and laws of the County of Los Angeles and the State of California pertaining to well construction, reconstruction and decommissioning. Upon completion of the well and within thirty days thereafter, I will furnish the Environmental Health office with a completion log of the well giving date drilled, depth of the well, perforations in the casing, and any other data deemed necessary by County Environmental Health Division.

Ronald Halpern
Applicant Signature
Applicant Name: (PRINT) Ronald Halpern
Telephone: (714) 278-0992 x 3052

Date	REHS
Date	REHS

PMW23

WELL PERMIT APPLICATION - NON-PRODUCTION WELLS

WATER & SEWAGE / MOUNTAIN & RURAL PROGRAMS - ENVIRONMENTAL HEALTH DIVISION
3050 COMMERCE DRIVE, BALDWIN PARK, CA 91706 (626) 430-5380 FAX (626) 813-3016

DATE: 2/3/05

<input checked="" type="checkbox"/> NEW WELL CONSTRUCTION PMW23 A,B,C	<input checked="" type="checkbox"/> MONITORING	<input type="checkbox"/> HEAT EXCHANGE
<input type="checkbox"/> RECONSTRUCTION OR RENOVATION	<input type="checkbox"/> CATHODIC	<input type="checkbox"/> OTHER (Specify):
<input type="checkbox"/> DECOMMISSIONING	<input type="checkbox"/> INJECTION	
<input type="checkbox"/> OTHER:	<input type="checkbox"/> EXTRACTION	

WELL LOCATION	SITE ADDRESS Approximately 740 feet Southeast of the Intersection of Sorensen Ave and Bucke St. (near 12012 Bucke St)		CITY Santa Fe Springs	ZIP CODE 90670
	Township	Range	Section	Map Book Page/ Grid LA 707 / A2
	NO. OF WELLS IN EACH PARCEL: 1 (Triple-nested cluster well) Attach site map with well locations Lat 33.960381 / Long -118.059364			

Type and Size of Production Casing	2-Inch diam Sch 80 PVC
Sanitary / Annular Sealing Material	A-95 cement 5X Bentonite Gel B 80X cement 2X Bentonite
Depth of Sanitary / Annular Seal	0-45, 0-105, 0-165
Conductor Casing Seal	N/A

Company	ARCADIS G+M
Contact Person	RON HALPERN
Address	1400 N HARBOR BLVD, Ste 700
City, State Zip	Fullerton, CA 92835
Telephone	(714) 978-0992 x 3052

Well Owner	US EPA Region 9 c/o Christopher Lichens
Address	75 Hawthorne St. Mail Stop SFD-74
City / Zip Code	San Francisco, CA 94105
Telephone	(415) 972-3149
Well Driller	Water Development Corp
Address	5566 Arrow Hwy
City / Zip Code	Montclair, CA 91763
C57 License No.	283326
Telephone	(909) 931-4014

IF WELL AND GEOLOGIC CONDITIONS ENCOUNTERED IN THE FIELD ARE FOUND TO DIFFER FROM THE SCOPE OF WORK PRESENTED TO THIS OFFICE, WORK PLAN MODIFICATIONS MAY BE REQUIRED

DISPOSITION OF PERMIT (Department Use Only)
THIS PERMIT IS CONSIDERED COMPLETE WHEN THE WORK PLAN IS APPROVED AND WHEN THE WELL COMPLETION LOG IS RECEIVED. NO WELL CONSTRUCTION OR DECOMMISSIONING CAN BE INITIATED WITHOUT THE WORK PLAN APPROVAL FROM THIS DEPARTMENT.

Date	3/3/05	RECEIVED
Conditions		

Well Depth log / records	
Method of Well Assessment	
Depth and Number of Perforations	
Type of Perforator Size of Perforations	
Type and Amount of Sealant	
Method of Upper Seal Pressure Application	

I hereby agree to comply in every respect with all the regulations of the County Environmental Health Division and with all ordinances and laws of the County of Los Angeles and the State of California pertaining to well construction, reconstruction and decommissioning. Upon completion of the well and within thirty days thereafter, I will furnish the Environmental Health office with a completion log of the well giving date drilled, depth of the well, perforations in the casing, and any other data deemed necessary by County Environmental Health Division.

Ronald Halpern
Applicant's Signature

Applicant Name: (PRINT) Ronald Halpern, RG
Telephone: (714) 978-0992 x 3052

Date	REHS
Date	REHS



ARCADIS

Appendix C

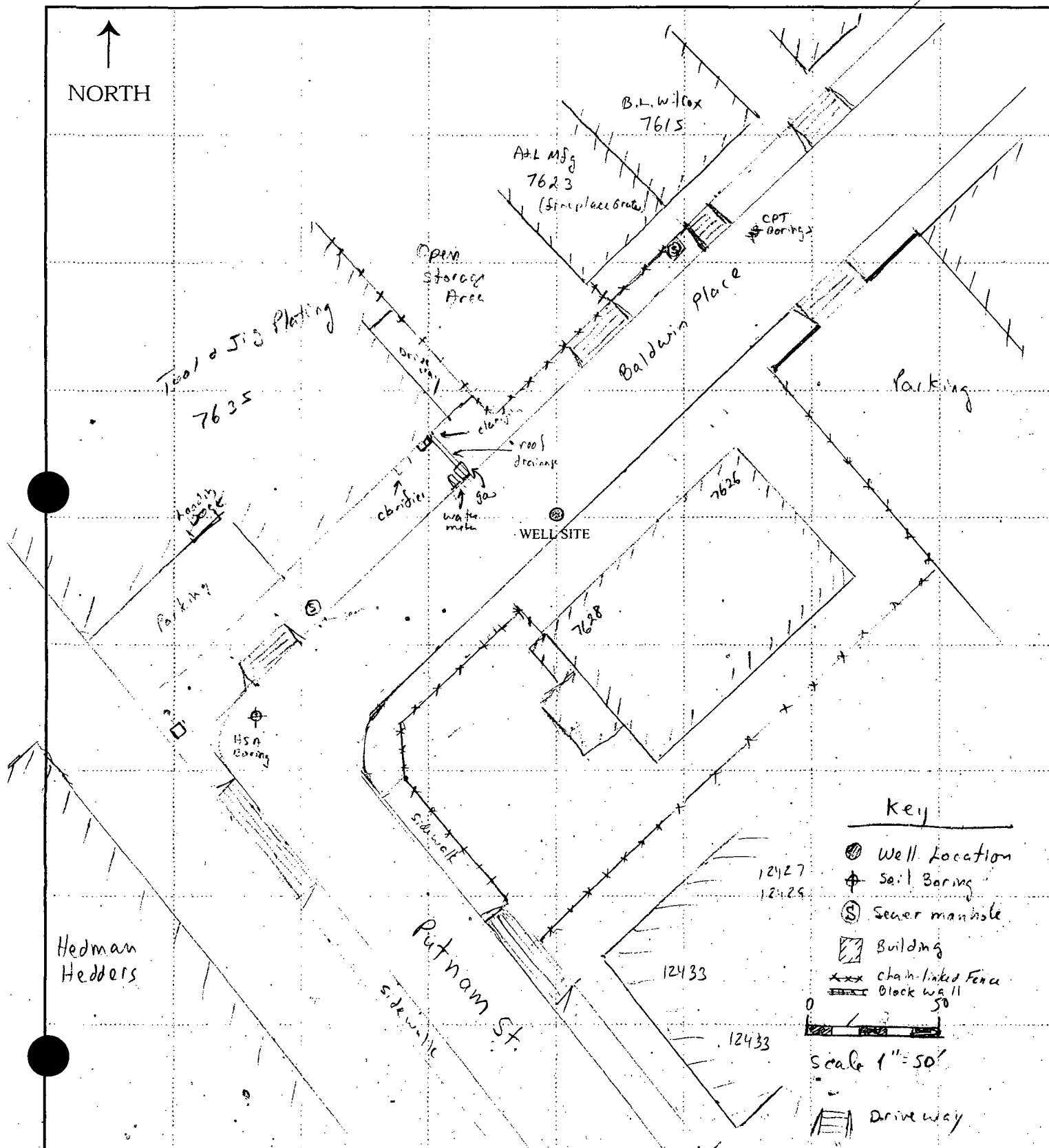
Well Locations Maps

MW12
WELL CONSTRUCTION LOCATION DETAILS

SITE ADDRESS or APN	7628 Baldwin Pl, Lot	CITY	Whittier	ZIP CODE
township	Range	Section	Map Book Page/ Grid	

WELL LOCATION

Provide a scaled drawing (1" = 50') indicating property lines, sewers, private sewage disposal systems within 200 feet of the well site along with labels and dimensions. Attach all documents that confirm that the well is located the required distance from the septic systems.



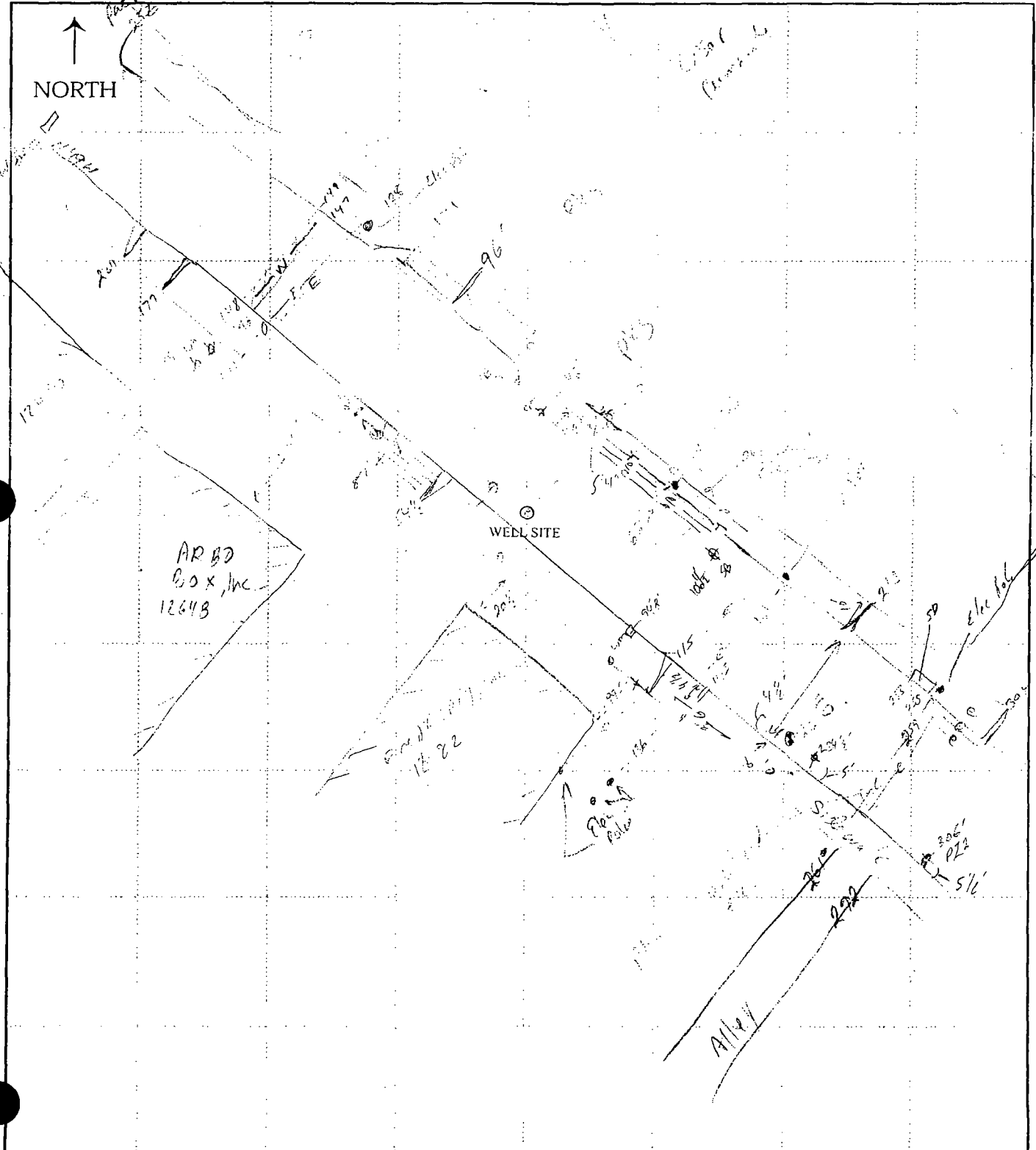
PMW 13

WELL CONSTRUCTION LOCATION DETAILS

SITE ADDRESS or APN		CITY	ZIP CODE
Township	Range	Section	Map Book Page/ Grid

WELL LOCATION

Provide a scaled drawing (1" = 50') indicating property lines, sewers, private sewage disposal systems within 200 feet of the well site along with labels and dimensions. Attach all documents that confirm that the well is located the required distance from the septic systems.



MW-14

WELL CONSTRUCTION LOCATION DETAILS

SITE ADDRESS or APN

12393 Washington Blvd

CITY

Whittier

ZIP CODE

Township

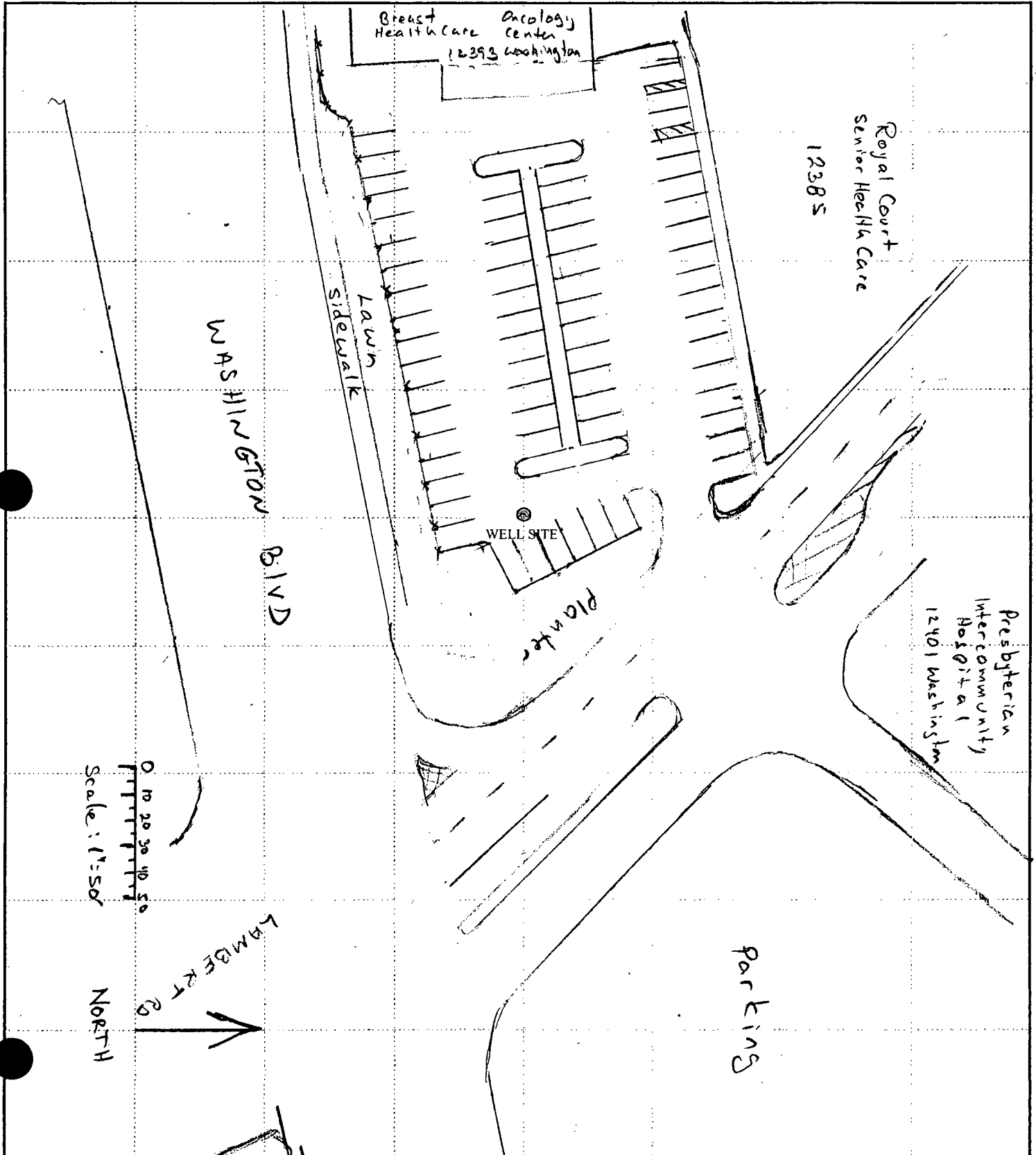
Range

Section

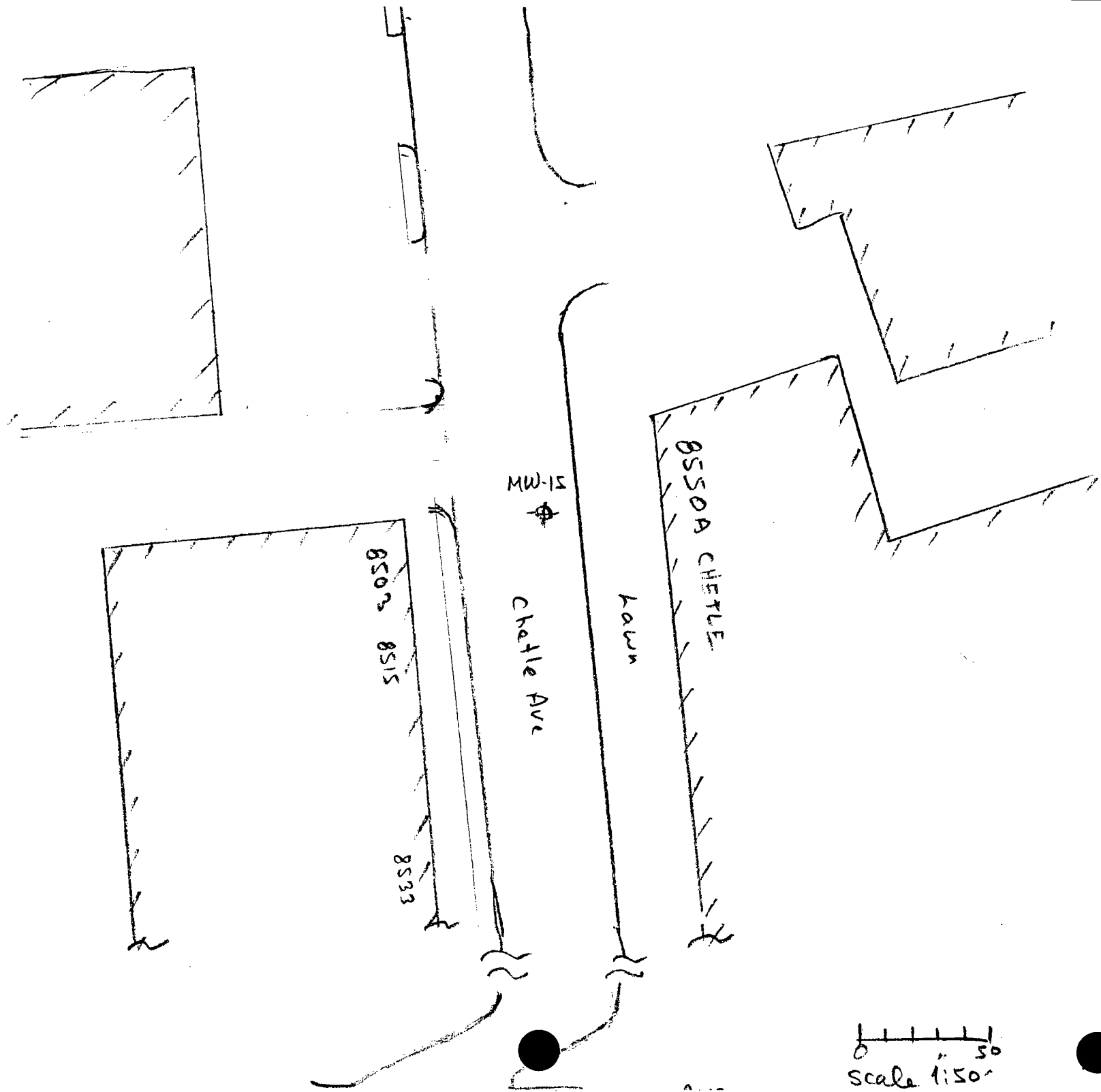
Map Book Page/ Grid

WELL LOCATION

Provide a scaled drawing (1" = 50') indicating property lines, sewers, private sewage disposal systems within 200 feet of the well site along with labels and dimensions. Attach all documents that confirm that the well is located the required distance from the septic systems.



WELL LOCATION MAP



0 50
Scale 1:50'

NTH

WELL CONSTRUCTION LOCATION DETAILS

PMW16

SITE ADDRESS or APN

CITY

ZIP CODE

Township

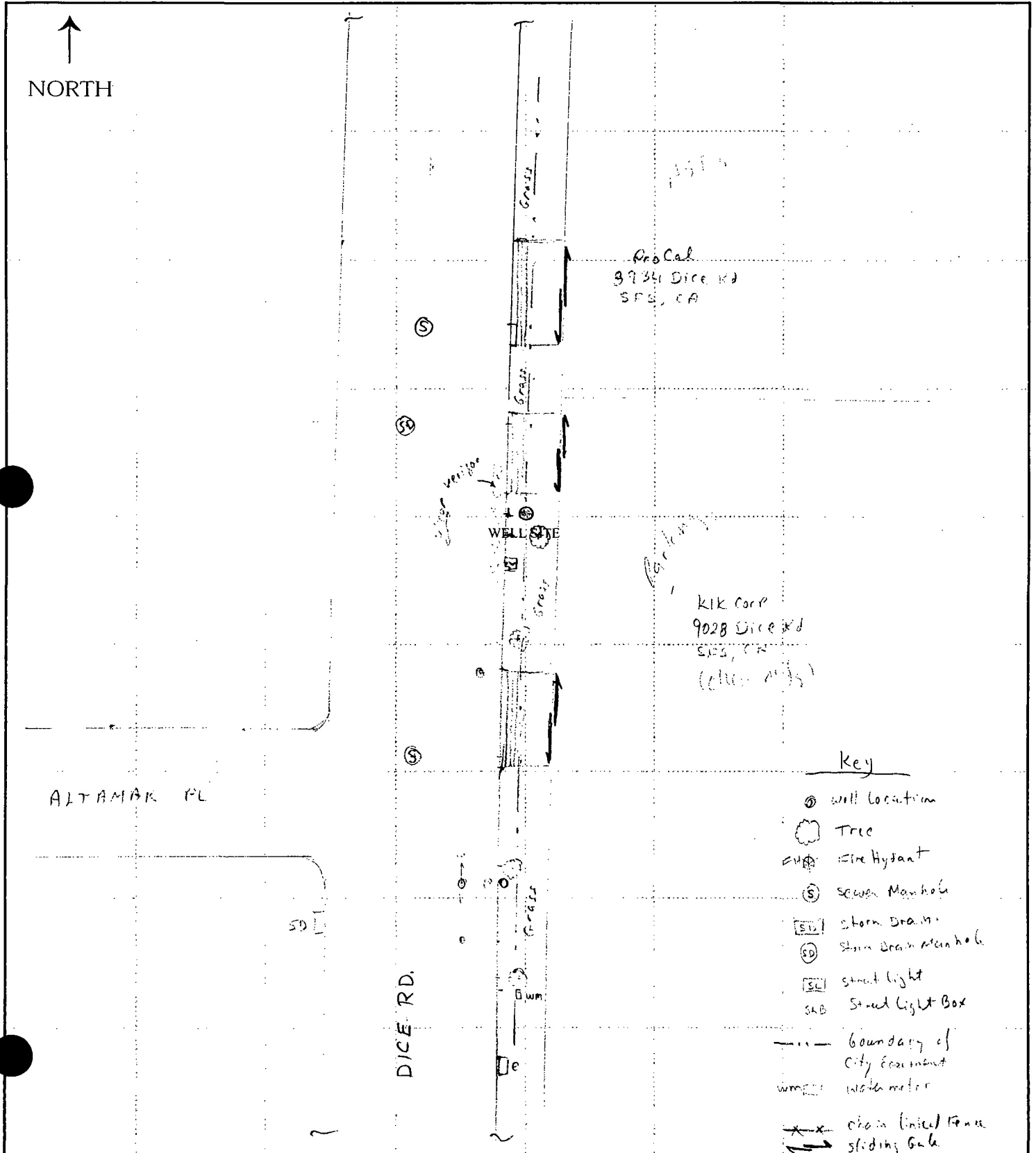
Range

Section

Map Book Page/ Grid

WELL LOCATION

Provide a scaled drawing (1" = 50') indicating property lines, sewers, private sewage disposal systems within 200 feet of the well site along with labels and dimensions. Attach all documents that confirm that the well is located the required distance from the septic systems.



Key

- ⊗ Well Location
- ☁ Tree
- ⊕ Fire Hydrant
- ⊙ Sewer Manhole
- SD Storm Drain
- SD Storm Drain Manhole
- SL Street Light
- SLB Street Light Box
- Boundary of City Easement
- ⊗ Water Meter
- xx Chain Linked Fence
- Sliding Gate
- EUB Underground Electrical Box
- Drive Way



SUBJECT: SITE PLAN - PMW 17

CA 646 - 01.09

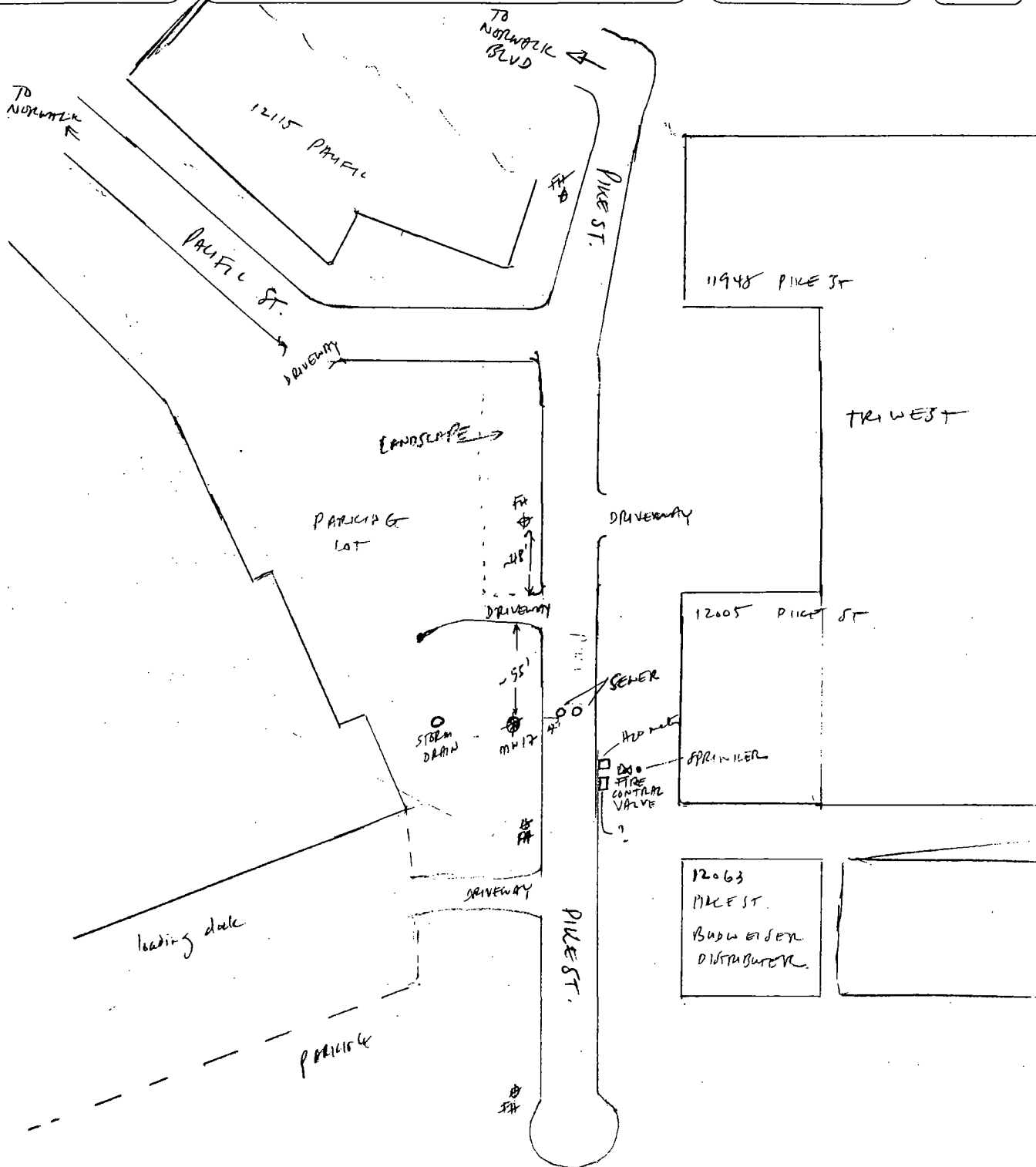
JOB NO:

BY: DATE:

CHKD: DATE:

PAGE

SHEET



NOT TO SCALE

PMW18

WELL CONSTRUCTION LOCATION DETAILS

SITE ADDRESS or APN In green belt on south side CITY SFS ZIP CODE
 of Ann St, ~174 feet ESE from Q of SFS RD (9400 SFS RD)

Township

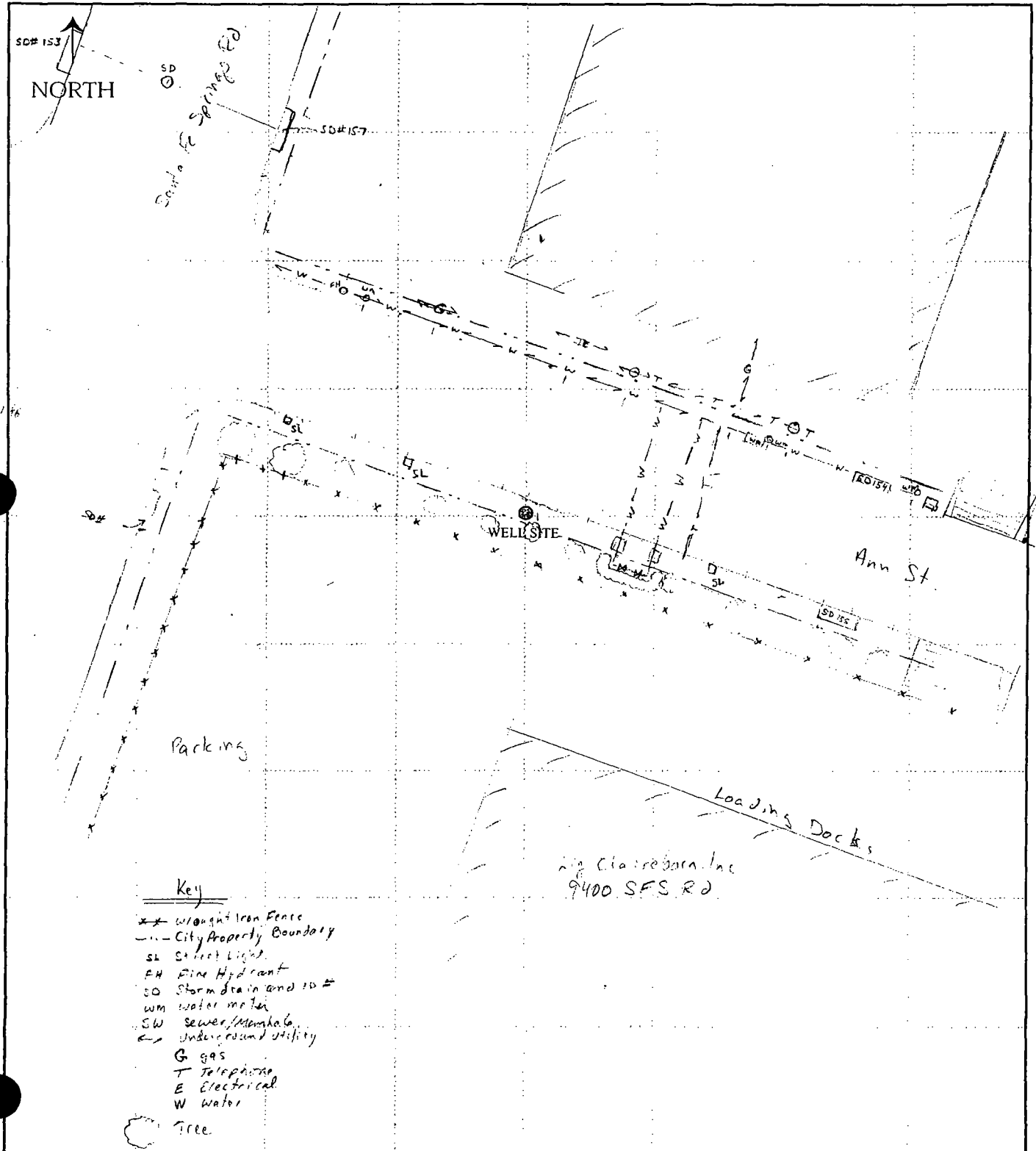
Range

Section

Map Book Page/ Grid

WELL LOCATION

Provide a scaled drawing (1" = 50') indicating property lines, sewers, private sewage disposal systems within 200 feet of the well site along with labels and dimensions. Attach all documents that confirm that the well is located the required distance from the septic systems.





SUBJECT: Well Location Map - MW19

JOB NO: CA000646.0001

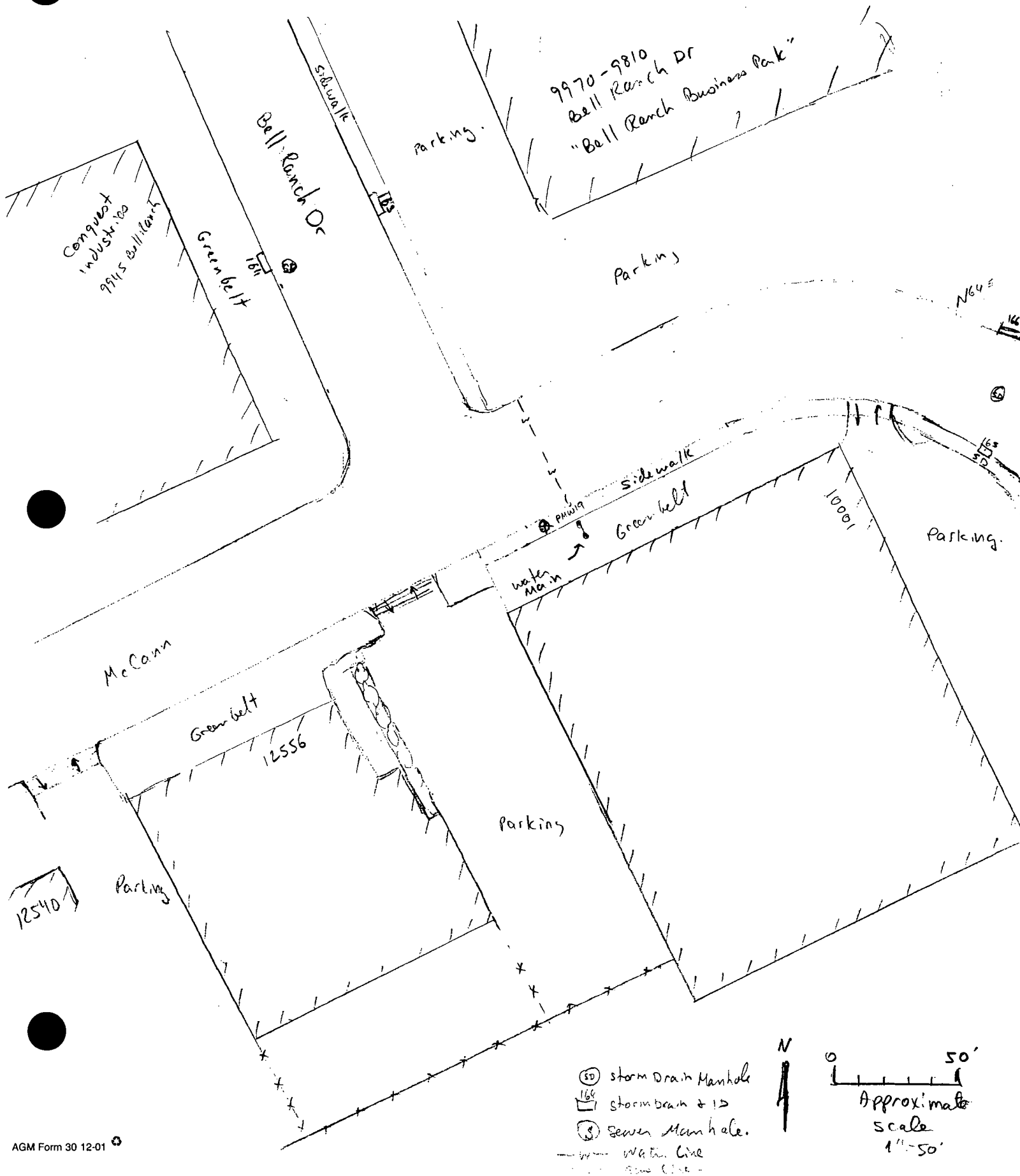
BY: DATE: 5/4/06

CHKD: DATE:

PAGE

SHEET

1





SUBJECT:

Well Location Map
PMW20

JOB NO:

BY:

DATE: 5/23

CHKD:

DATE:

PAGE

SHEET

/

Quad: Whittier, CA
Township 3S
Range 12W
Section 6A

~ Lat: $33^{\circ} 56' 42.80'' N$
~ Long: $118^{\circ} 4' 29.58'' W$

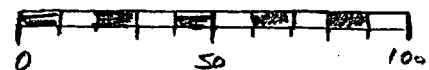
Cascade
PumpDistribution
Facility
Parking

GEARY

MW-20

Kemp Bros
Construction, Inc.
10135Oil Field
Briteburn
Kemp

Parking

Petro Builders
Storage YardApproximate Scale
1" = 50'

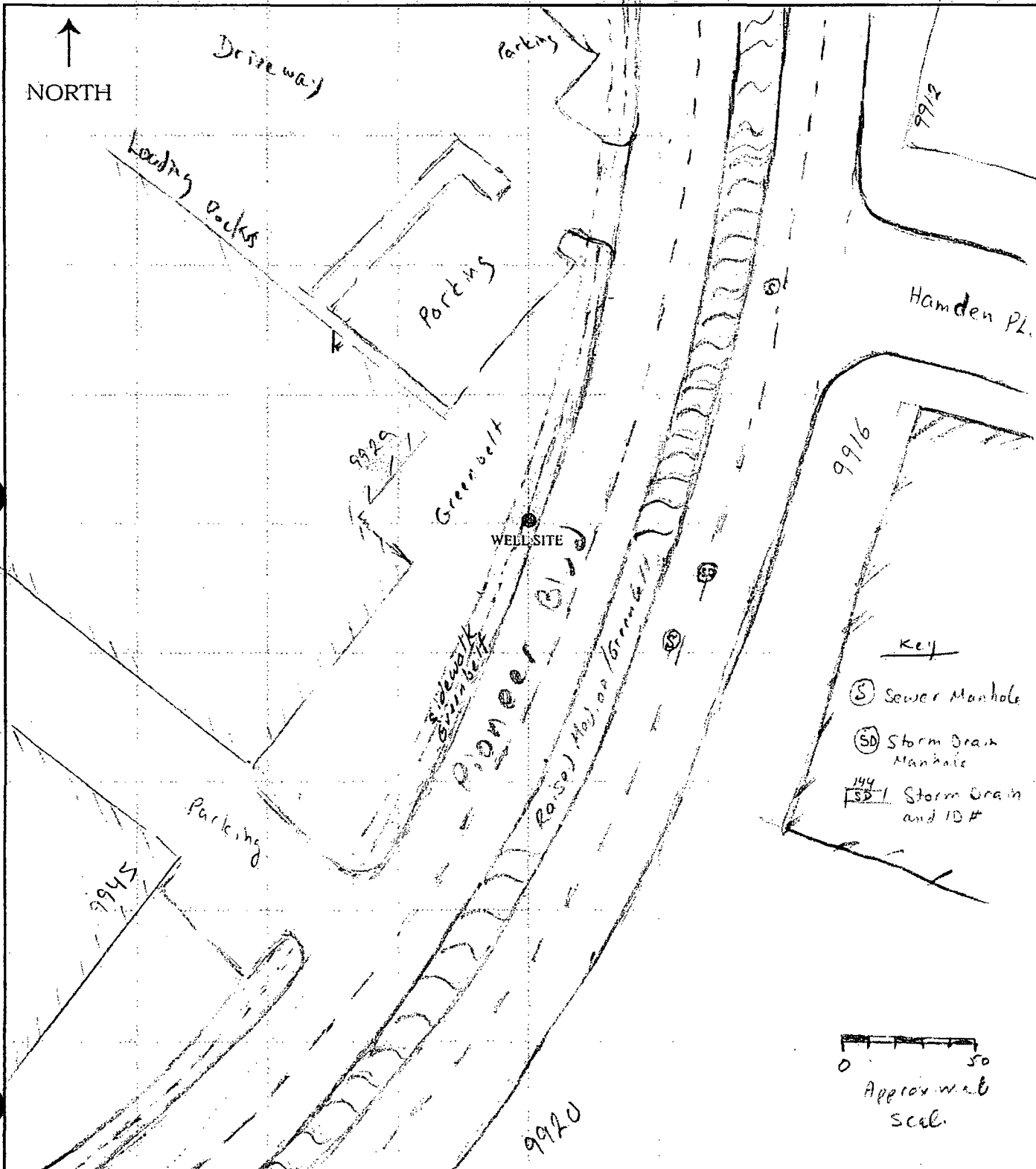
WELL CONSTRUCTION LOCATION DETAILS

PMWR1

SITE ADDRESS or APN 9929 Pioneer Blvd		CITY Santa Fe Springs, CA	ZIP CODE
Township	Range	Section	Map Book Page/ Grid

WELL LOCATION

Provide a scaled drawing (1" = 50') indicating property lines, sewers, private sewage disposal systems within 200 feet of the well site along with labels and dimensions. Attach all documents that confirm that the well is located the required distance from the septic systems.



WELL CONSTRUCTION LOCATION DETAILS

PMW 22

SITE ADDRESS or APN

Across from 11749 Terradell St.

CITY

Santa Fe Springs

ZIP CODE

Township

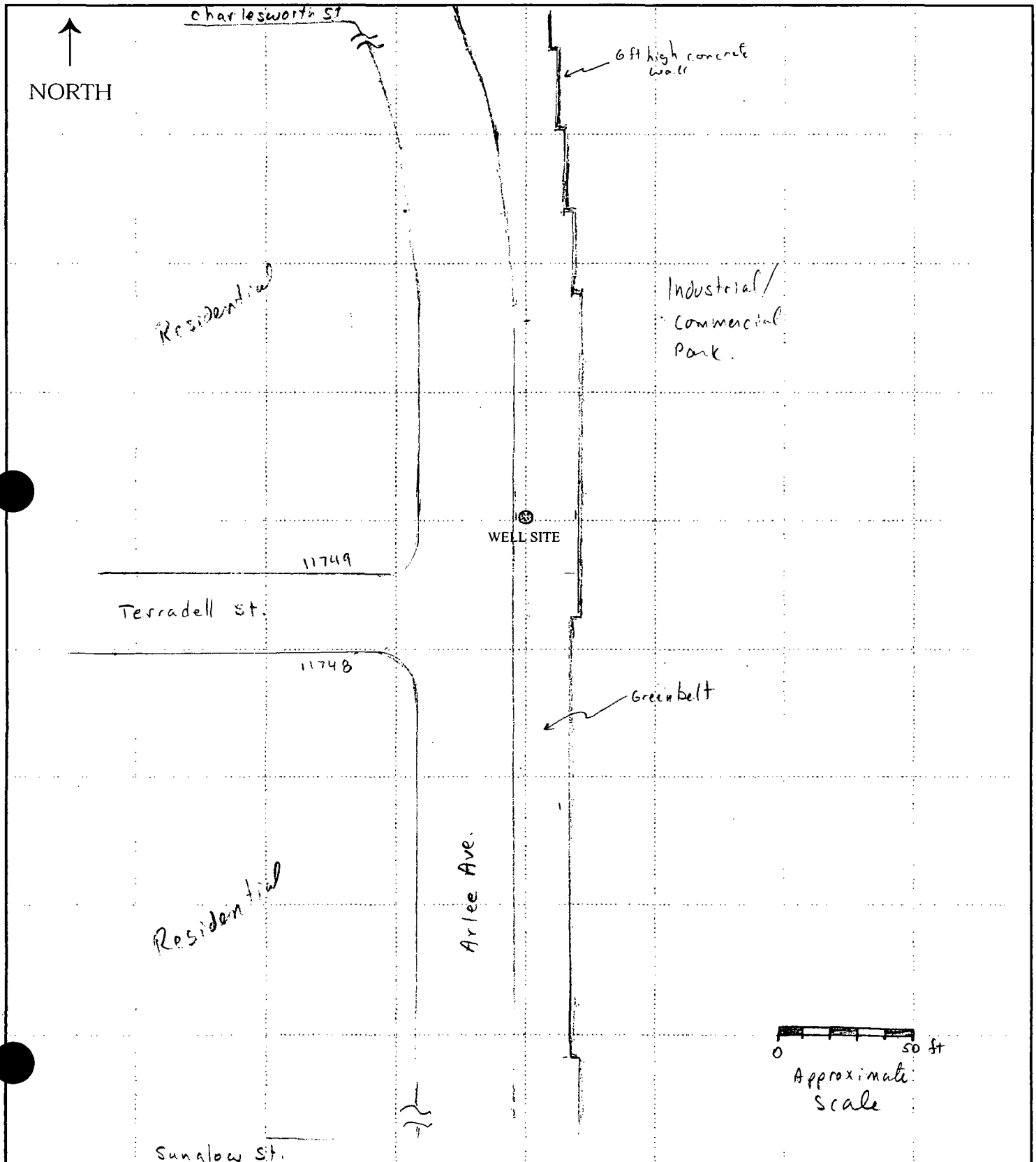
Range

Section

Map Book Page/ Grid

WELL LOCATION

Provide a scaled drawing (1" = 50') indicating property lines, sewers, private sewage disposal systems within 200 feet of the well site along with labels and dimensions. Attach all documents that confirm that the well is located the required distance from the septic systems.



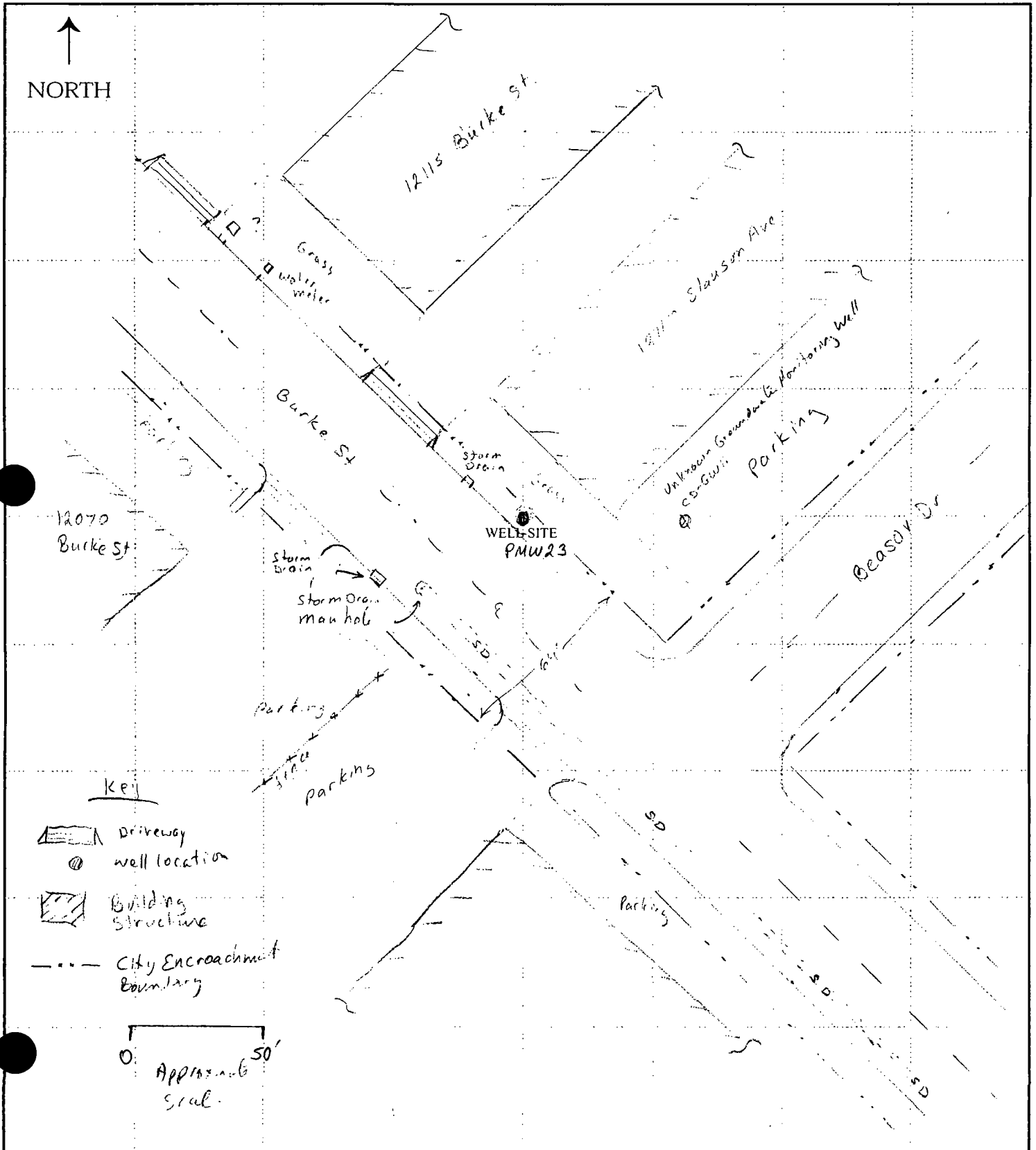
PMW23

WELL CONSTRUCTION LOCATION DETAILS

SITE ADDRESS or APN 12110 Slauson Ave		CITY Santa Fe Springs	ZIP CODE
Township	Range	Section	Map Book Page/ Grid

WELL LOCATION

Provide a scaled drawing (1" = 50') indicating property lines, sewers, private sewage disposal systems within 200 feet of the well site along with labels and dimensions. Attach all documents that confirm that the well is located the required distance from the septic systems.





ARCADIS

SUBJECT: Omega Chemical OU-2

Well Location Map

JOB NO:

PEW-1

BY: RMH

DATE: 6/29/05

CHKD:

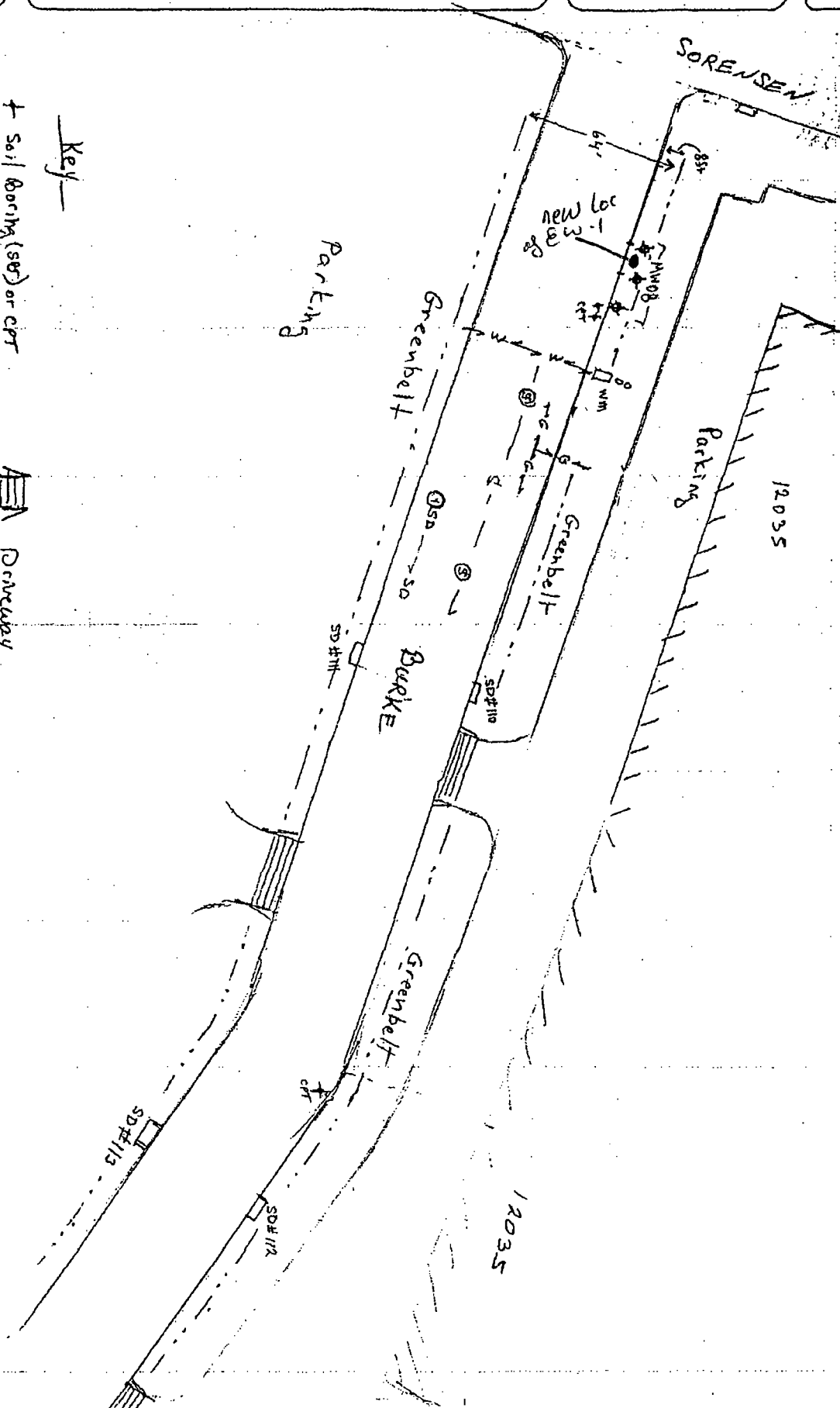
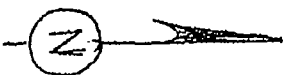
DATE:

- Key
- + Soil Boring (SB) or CPT
 - ⊕ Monitoring Well (MW)
 - WM Water Main
 - W — underground water line
 - G — underground gas line
 - ⊗ sewer manhole
 - SD storm drain manhole
 - SD#110 storm drain and 10th
 - FD#1 fire hydrant

Driveway

Boundary of City Right-of-way

Approximate Scale
1" = 60 ft





ARCADIS

Appendix D

Boring Logs and Sample ID
Logs, Geophysical Logs, and
Well Construction Diagrams

LOG OF BORING EW-1

(Page 1 of 4)

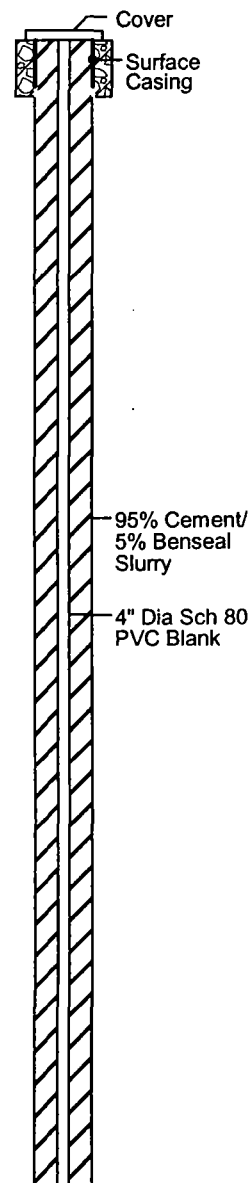
Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 25, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Mud Rotary

OVA : MiniRae
Driller :
Drilling Method : Mud Rotary
Diameter : 9.75
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
0			08:25				T T T	Grass surface to ~6". (Off mud-return) SILT with CLAY and SAND, ~10-20% Sand, black (7.5YR 2.5/1).
5			08:33					(Off mud-return) CLAYEY SILT, soft, olive (5Y 4/4), moist.
10			08:40					Same as above.
15			08:47			ML		Same as above - medium stiff. Increasing SAND content ~5-10% fine to medium Sand (max. 1.5 mm diameter).
20			09:01					(Off mud-return) SILT with SAND and CLAY, ~20% fine to medium Sand, ~10-20% Clay, olive brown (2.5Y 4/4).
25								

Well: EW-1
Elev.: 152.43



DESCRIPTION OF BORING LOCATION: On side of Burke just east of Sorenson, in greenbelt, between
MW-8A and MW-8D.

NOTES: Depth in feet below ground surface (bgs). Centralizers on sump and at 40 feet bgs.

LOG OF BORING EW-1

(Page 2 of 4)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 25, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Mud Rotary

OVA : MiniRae
Driller :
Drilling Method : Mud Rotary
Diameter : 9.75
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
25						ML		
30						SP/SW		(Off mud-return) Poorly graded SAND, predominantly (~80%) fine to medium (max. 2 mm diameter), ~20% coarse (max 5 mm diameter)
35			09:27			SP/SW		Same. Lots of "chatter" from 30-37', possible gravel.
40			09:32			SP		Same as above.
						SP/SW		(Off mud-return) Poorly graded SAND, fine to medium grained (max. 1 mm diameter), olive brown (2.5Y 4/4), wet.
						SP		Some chatter ~38-39'. Well graded SAND
45			09:45			SW		Poorly graded SAND, as above.
50								(Off mud-return) Well graded SAND, fine to coarse Sand, (max. 5 mm diameter), subangular to subrounded.

Well: EW-1
Elev.: 152.43



95% Cement/
5% Benseal
Slurry

4" Dia Sch 80
PVC Blank

DESCRIPTION OF BORING LOCATION: On side of Burke just east of Sorenson, in greenbelt, between MW-8A and MW-8D.

NOTES: Depth in feet below ground surface (bgs). Centralizers on sump and at 40 feet bgs.

LOG OF BORING EW-1

(Page 3 of 4)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 25, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Mud Rotary

OVA : MiniRae
Driller :
Drilling Method : Mud Rotary
Diameter : 9.75
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
50								Fine and coarse GRAVEL (<5%) observed.	
55			09:55			SW		Lot of chatter at 55'. Well graded SAND with Gravel, ~20-30% Gravel, ~70-80% well-graded fine to coarse Sand, Gravel (max 15 mm diameter) (subrounded, igneous rock with quartz and mafic materials).	95% Cement/ 5% Benseal Slurry
60			10:00					(Off mud-return). SILT, olive brown.	4" Dia Sch 80 PVC Blank Medium Chips
65						ML			#30 Transition Sand
70			10:26			SP		(Off mud-return) Poorly graded SAND, fine to medium grained.	#2/12 Sand Pack
75						CL		(Off mud-return) Chattering stopped at ~73'. SILTY CLAY with SAND, ~10-20% fine to medium Sand, occasional fine Gravel, olive brown, soft to medium stiff.	4" Dia Sch 80 PVC w/0.02" Slotted Screen

DESCRIPTION OF BORING LOCATION: On side of Burke just east of Sorenson, in greenbelt, between MW-8A and MW-8D.

NOTES: Depth in feet below ground surface (bgs). Centralizers on sump and at 40 feet bgs.


**ARCADIS**

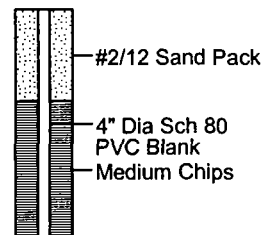
Infrastructure, environment, facilities

LOG OF BORING EW-1

(Page 4 of 4)

Omega Chemical Operable Unit 2
Project No. CA000646.0001Date Completed : May 25, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Mud RotaryOVA : MiniRae
Driller :
Drilling Method : Mud Rotary
Diameter : 9.75
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
75						CL		
80			10:37					Bottom of boring at 80'.
85								
90								
95								
100								

Well: EW-1
Elev.: 152.43

09-07-2006 G:\COMMON\MTech\5\Omegamega Chemical\EW-1 BOR

DESCRIPTION OF BORING LOCATION: On side of Burke just east of Sorenson, in greenbelt, between MW-8A and MW-8D.

NOTES: Depth in feet below ground surface (bgs). Centralizers on sump and at 40 feet bgs.

LOG OF BORING MW12

(Page 1 of 5)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed	: August 9, 2005	OVA	: MiniRae
Logged By	: Ronald Halpern	Driller	: Dan
Checked By	: Ronald Halpern	Drilling Method	: Sonic
Drilling Company	: WDC	Diameter	: 6 1/4"
Drill Rig	: Sonic SpeedStar 15K	Calibration Gas/Conc	: 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
0									Concrete to approximately 6".	
0.5-8'									SILTY CLAY, stiff, slightly moist, dark yellowish brown (10YR 4/4), no odor.	
					0.0		CL		Same as above.	
10:30					0.0					
9.5-11'					0.0		GW-GM		Well graded GRAVEL with Sand and Silt, ~60-70% fine and coarse Gravel (max 55 mm dia.), ~25-30% fine to coarse well graded Sand, ~10% Silt, dark yellowish brown (10YR 4/4), no odor, Gravel and Sand subangular to subrounded.	
					0.0	None				
14-19'					0.0		CH		High plasticity, CLAY, very stiff, moist, dark grayish brown (10YR 3/2), no odor, high toughness, high liquid limit, very plastic, no dilatency.	
10:52					0.0				Same as above.	
11:10					0.0					
11:24					0.0					

In the greenbelt on the east side of Dice Road, approximately 85 feet north of the centerline intersection with Altamar Place.

LOG OF BORING MW12

(Page 2 of 5)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed	: August 9, 2005	OVA	: MiniRae
Logged By	: Ronald Halpern	Driller	: Dan
Checked By	: Ronald Halpern	Drilling Method	: Sonic
Drilling Company	: WDC	Diameter	: 6 1/4"
Drill Rig	: Sonic SpeedStar 15K	Calibration Gas/Conc	: 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
25					0.0		CH		Same as above.
					0.0		SP-SC		27-29' core: Poorly graded SAND with Clay and Gravel, ~35-50% predominantly fine subangular Gravel (<=20 mm dia.), ~55-60% fine and coarse Sand (gap grades), ~5% Clay, dry, dark yellowish brown (10YR 4/6), no odor, Gravel sub-spherical and subrounded of granitic origin.
30				12:02	0.0		SC-CL		30-31.5' core: CLAYEY SAND with Gravel, 20% fine and coarse subrounded Gravel (max 35 mm dia.), ~40% predominantly well fine to coarse Sand (subrounded) in 40% Silty Clay matrix, dense, moist, brown (10YR 4/3), caliche and brownish yellow (10YR 6/8) patches, (conglomerate).
				12:29	0.0		SC-CL		
35				13:10	1.5		SC		34-36': Same as above.
					0.3		SC		37-39' core: Same as above.
40				13:30	1.0	23			39-44' core: Low plasticity SILT, stiff, moist, brown (7.5YR 4/4), occasional fine Gravel.
					46				
				14:30	52		ML		44-47.5': SILTY CLAY with Sand, ~5% fine subangular Gravel (max 15 mm dia.), ~10% fine to coarse Sand (max 5 mm dia.), ~85% fines, brown (7.5YR 4/2), moist, stiff, no odor, moderate to high toughness, moderate plasticity.
				8/8/05					
							CL		
50									

Well: MW12
Elev.: 221.23

95% Cement/
5% Bentonite
2" Dia. Sch. 80
PVC

In the greenbelt on the east side of Dice Road, approximately 85 feet north of the centerline intersection with Altamar Place.

**ARCADIS**

Infrastructure, environment, facilities

LOG OF BORING MW12

(Page 3 of 5)

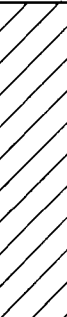





Omega Chemical Operable Unit 2
Project No. CA000646.0001Date Completed : August 9, 2005
Logged By : Ronald Halpern
Checked By : Ronald Halpern
Drilling Company : WDC
Drill Rig : Sonic SpeedStar 15KOVA : MiniRae
Driller : Dan
Drilling Method : Sonic
Diameter : 6 1/4"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
50									No recovery.	
55						None	CL			
60				13:45			CL-ML		SILTY CLAY/CLAYEY SILT, stiff, moist, brown (7.5YR 4/2).	95% Cement/ 5% Bentonite
65							ML		At 64', dark greenish gray (Gley 1 3/2), staining on wall of sample. At 65' CLAYEY SILT, stiff, moist to wet, brown (7.5YR 4/3), no odor, low to moderate toughness, very slow to no dilatency.	2" Dia. Sch. 80 PVC
70									Same as above.	
75							CL		At 72' SILTY CLAY, hard, moist, brown (7.5YR 4/3), caliche, high toughnes, moderate plasticity, high dry strength.	

In the greenbelt on the east side of Dice Road, approximately 85 feet north of the centerline intersection with Altamar Place.

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : August 9, 2005
Logged By : Ronald Halpern
Checked By : Ronald Halpern
Drilling Company : WDC
Drill Rig : Sonic SpeedStar 15K
OVA : MiniRae
Driller : Dan
Drilling Method : Sonic
Diameter : 6 1/4"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
75							CL		Same as above - no caliche.	95% Cement/ 5% Bentonite
80							ML			2" Dia. Sch. 80 PVC
85				14:53			SC		At 85', SILT, soft (>1" penetration), moist to wet, dark brown (7.5YR 3/4).	Bentonite Med. Chips
90							CL		From 86.5-89': CLAYEY SAND/SANDY CLAY, ~45-55% very fine Sand (<0.1 mm), soft, wet to saturated, strong brown (7.5YR 4/6), trace fine Gravel, low toughness, rapid dilatancy. From 89' CLAY/CLAY with SAND, ~15% fine Sand, 85% Silty Clay, medium stiff, wet, strong brown (7.5YR 4/4) to dark brown (7.5YR 3/4).	Sand #30
95							CL		Same as above, trace fine-Gravel, occasional coarse, wet to saturated.	2" Dia. PVC Sch 80 (0.020" Slotted Screen)
100							CL		Same as above, wet to saturated, ~10-15% fine Sand, ~15% Silt, ~10% Clay, medium stiff, wet to saturated, dark brown (7.5YR 3/2), low to medium toughness, low plasticity, high dry strength.	2" Dia. Sch. 80 PVC Blank

In the greenbelt on the east side of Dice Road, approximately 85 feet north of the centerline intersection with Altamar Place.

**ARCADIS**

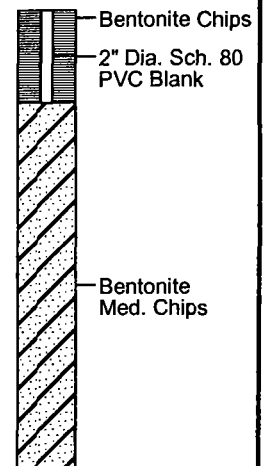
Infrastructure, environment, facilities

LOG OF BORING MW12

(Page 5 of 5)

Omega Chemical Operable Unit 2
Project No. CA000646.0001Date Completed : August 9, 2005
Logged By : Ronald Halpern
Checked By : Ronald Halpern
Drilling Company : WDC
Drill Rig : Sonic SpeedStar 15KOVA : MiniRae
Driller : Dan
Drilling Method : Sonic
Diameter : 6 1/4"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
100				16:00						
			OC2-PMW12 W-0-03	8/9/05 08:05			SP-SM		From 101-102' set Simulprobe: Poorly graded SAND, with SILT, ~10-20% Silt, 80-90% fine Sand, soft, saturated, brown (10YR 4/3), to dark brown (10YR 3/3), occasional fine and coarse gravel (max 60 mm dia. - subrounded and longated).	
105										
							SM		From 107-109' core: Cemented, well-graded SILTY SAND with Gravel, ~30% Silt, ~45% fine to coarse Sand, ~25% fine and coarse Gravel (max 40 mm dia.), hard, dry mottled brown (7.5YR 4/4), light gray (10YR 7/1) and reddish orange.	
110									Bottom of boring at 110'.	
115										
120										
125										

Well: MW12
Elev.: 221.23

09-07-2006 GISCOMMONMTech5Omega ChemicalMW-12.BOR

In the greenbelt on the east side of Dice Road, approximately 85 feet north of the centerline intersection with Altamar Place.

[illegible]



ARCADIS
Infrastructure, environment, facilities

LOG OF BORING MW13

(Page 1 of 3)

Omega Chemical Operable Unit 2
Whittier & Santa Fe Springs
Project No. CA000646.0001

Date Completed : July 1, 2005
Logged By : Ronald Halpern
Checked By : Ronald Halpern
Drilling Company : WDC
Drill Rig : GEFCO Star 30K

OVA : MiniRae
Driller : Steve Houston
Drilling Method : Mud Rotary
Diameter : 10"
Calibration Gas/Conc : Isobutylene 100

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
0									Concrete to 6"	Well1: MW13A Well2: MW13B Elev.: 206.30
5				6/29/05	0.1				(Off cyclone). SILTY CLAY, firm to stiff, dark brown (10YR 3/3), moist.	Cover Concrete Surface Casing
20				12:46					Same as above. Approximately 5% fine to coarse SAND.	
30	☒	N/A		13:38	0.1		CL		(30-31' Split Spoon). SILTY CLAY, stiff, dark yellowish brown (10YR 4/4), moist, moderate to high toughness, no dilatency, high plasticity, occasional fine gravel (max 20 mm dia.) and coarse sand (max 4 mm dia.).	95% Cement 5% Bentonite Slurry
40	☒	N/A		14:30	0.1				(40-41' Split Spoon). SILTY CLAY, stiff, dark yellowish brown (10YR 4/4), moist, high toughness, high plasticity, slow dilatency.	2" Dia. Sch. 80 PVC Blank
50										

Boring in front of Fred Rippey at 12482 Putnam Street. Elevation noted is ground surface.
A = shallow (dry); B = deeper.

09-07-2006 G:\COMMON\MTech\5\Omega Chemical\MW-13.BOR

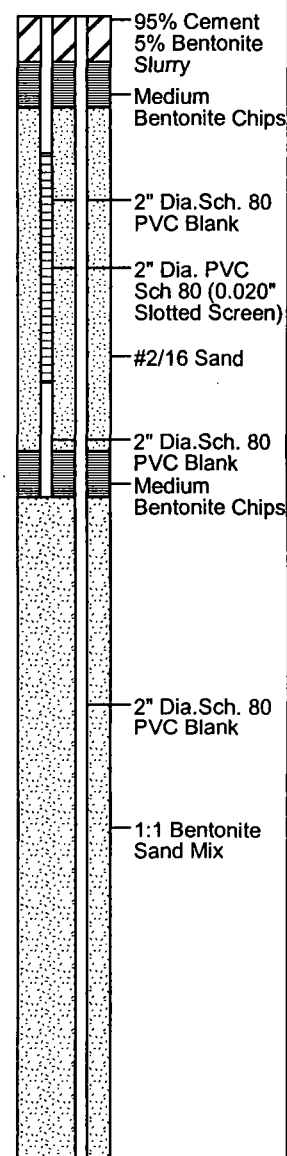
Omega Chemical Operable Unit 2
Whittier & Santa Fe Springs
Project No. CA000646.0001

Date Completed : July 1, 2005
Logged By : Ronald Halpern
Checked By : Ronald Halpern
Drilling Company : WDC
Drill Rig : GEFCO Star 30K

OVA : MiniRae
Driller : Steve Houston
Drilling Method : Mud Rotary
Diameter : 10"
Calibration Gas/Conc : Isobutylene 100

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
50	☒			16:20	0.1		CL		(50-51' Split Spoon). SILTY CLAY, hard, dark yellowish brown (10YR 4/4), moist.
55									
60	☒			16:55			ML-SP		(60.75' Split Spoon). Low plasticity, SILT/poorly graded Sand, very fine-grained, stiff, olive (5Y 4/4), moist, low toughness, rapid dilatancy, low plasticity, low dry strength, light gray artifacts, possibly of marine origin, light yellowish brown oxidation stain (~1/4" thick).
65							SP		From approx. 63' off shaker - poorly graded Sand, fine-grained, olive.
70	☒			17:25 6/29/05 Start 6/30/05			ML-CL		(70-71' Split Spoon). CLAYEY SILT, stiff, light olive brown (2.5Y 5/4), moist, moderate to high toughness, moderate plasticity, slow to moderate dilatancy, light gray artifacts (possible marine shells?), low to moderate strength.
75									
80	☒			07:50			CH		(80-81' Split Spoon). SILTY CLAY, hard, yellowish brown (10YR 5/4), moist, high toughness, moderate to high liquid limit, no dilatancy, high plasticity, high dry strength.
85	☒			08:30					
90	☒			09:20			CL		(85-86' Split Spoon). CLAYEY SILT/SILTY CLAY, very stiff, (<1/4" penetration), brown (7.5YR 4/3), moist, low to moderate toughness, moderate plasticity. (90-91' Split Spoon). CLAYEY SILT/SILTY CLAY, very stiff, brown (7.5 YR 4/4), moist, low to moderate toughness, low plasticity, slow dilatancy.
95	☒			09:45					
100									(95-96' Split Spoon). CLAYEY SILT/SILTY CLAY, very stiff, brown (7.5 YR 4/4), moist, low to moderate toughness, low plasticity, slow dilatancy.

Well1: MW13A
Well2: MW13B
Elev.: 206.30



Boring in front of Fred Rippey at 12482 Putnam Street. Elevation noted is ground surface.
A = shallow (dry); B = deeper.

LOG OF BORING MW13

(Page 3 of 3)

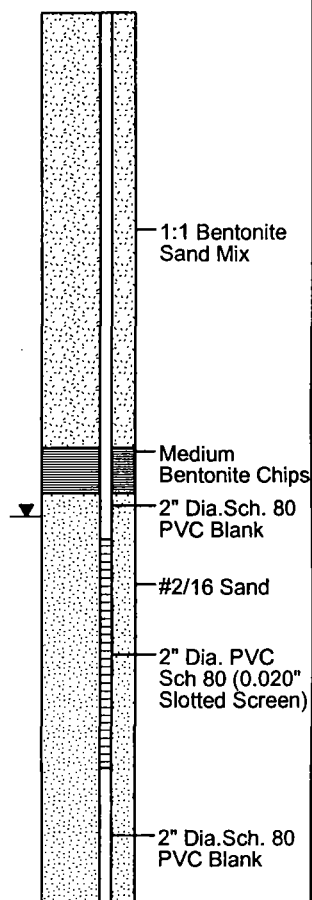
Omega Chemical Operable Unit 2
Whittier & Santa Fe Springs
Project No. CA000646.0001

Date Completed : July 1, 2005
Logged By : Ronald Halpern
Checked By : Ronald Halpern
Drilling Company : WDC
Drill Rig : GEFCO Star 30K

OVA : MiniRae
Driller : Steve Houston
Drilling Method : Mud Rotary
Diameter : 10"
Calibration Gas/Conc : Isobutylene 100

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
100							ML-CL		Driller noted easier drilling @102'.	
105	⊗			11:40			CH		(105-106' Split Spoon). High plasticity, CLAY, hard, brown (10YR 5/3), moist, high liquid limit, no dilatency, high toughness, high plasticity, high dry strength.	
110										
115	⊗			12:12					(115-116' Split Spoon). SILTY CLAY, hard, dark yellowish brown (10 YR 4/4), moist, high toughness, high liquid limit, high plasticity, high dry strength.	
120	⊗			17:40			ML		(120-121' Split Spoon). SANDY SILT with clay, approx 10-20% clay, approx 30-40% very fine to fine sand, approx 40-60% silt; stiff, dark yellowish brown (10 YR 4/4), moist, low plasticity, low toughness, moderate dilatency, low dry strength.	
125	⊗		OC2-PMW13 W-0-04	Stop 18:05			SP		(122 off E-log; from 124 off shaker; 125-126 Split Spoon). Poorly graded SAND, approx 90% fine-grained, 10% medium-grained, (0.5-1 mm dia.), dark grayish brown (2.5 Y 4/2), wet/saturated.	
130			OC2-PMW13 W-0-04	Start 7/1/05 07:15			SM		Increased SILT content with depth.	
135							CL		(133-134' Split Spoon). Low plasticity CLAY, approx 3-5% fine sand, firm to very stiff (approx 1/4" penetration), light olive brown (2.5Y 5/3) with oxidation stains ranging from yellowish brown to dark reddish brown (5YR 3/4), moist to wet, low to moderate toughness, low liquid limit, moderate dilatency, low to moderate plasticity, possible organic (continental) artifacts, preferred horizontal fracture plane.	
140							SW		(135-139' off E-log): SAND.	
145										
150										

Well1: MW13A
Well2: MW13B
Elev.: 206.30



Bottom of boring at 139'.

Boring in front of Fred Rippey at 12482 Putnam Street. Elevation noted is ground surface.
A = shallow (dry); B = deeper.

PACIFIC SURVEYS

ELECTRIC LOG LATEROLOG 3 GAMMA RAY

Job No. 12104	Company WDC EXPLORATION & WELLS		
File No.	Well PMW-13		
	Field WHITTIER		
	County LOS ANGELES	State	CA
Location: 12482 PUTNAM ST.		Other Services: GR/LL3 CALIPER	
Sec.	Twp.	Rge.	
Permanent Datum	G.L.	Elevation	Elevation
Log Measured From	G.L.	0'	above perm. datum
Drilling Measured From	G.L.		K.B. D.F. G.L.
Date	7-1-05		
Run Number	ONE		
Depth Driller	139'		
Depth Logger	139'		
Bottom Logged Interval	138'		
Top Log Interval	10'		
Casing Driller	9.5" @ 18'		
Casing Logger	18'		
Bit Size	9"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	7.8 @ 77F		
Rmf @ Meas. Temp	8.8 @ 77F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEAS		
Rm @ BHT	N/A		
Time Circulation Stopped	N/A		
Time Logger on Bottom	9:30 AM		
Max. Recorded Temperature	N/A		
Equipment Number	PS-2		
Location	L.A.		
Recorded By	LAPORTE		
Witnessed By	R. HALPERN		

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Comments

ELOG Calibration Report

Serial:
Model:

D1
DTQ

Shop Calibration Performed:
Before Survey Verification Performed:
After Survey Verification Performed:

Fri Apr 29 12:26:04 2005
Mon Jun 06 11:08:02 2005
Fri Apr 29 12:32:46 2005

Shop Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	8.241	99.640		10.200	102.200	Ohm-m	1.007	1.904
Long	7.417	96.821		10.200	102.200	Ohm-m	1.029	-17.567
IEE	112.580	4730.241	counts	0.123	5.177	A		
VSN	9.477	5293.988	counts	0.181	100.976	V		
VLN	214.205	1417.736	counts	4.086	27.042	V		

Before Survey Verification

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	9.282	99.534		7.493	99.615	Ohm-m	1.021	-1.982
Long	457.514	107.030		106.708	106.708	Ohm-m	1.628	-67.572
IEE	107.875	4570.704	counts	0.118	5.002	A		
VSN	11.250	5111.269	counts	0.215	97.491	V		
VLN	138.625	1374.056	counts	2.644	26.208	V		

After Survey Verification

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	7.701	99.621		7.548	98.604	Ohm-m	0.991	-0.081
Long	677.668	106.711		106.590	106.590	Ohm-m	0.993	0.656
IEE	113.117	4756.250	counts	0.124	5.205	A		
VSN	9.787	5323.424	counts	0.187	101.538	V		
VLN	215.309	1425.576	counts	4.107	27.191	V		

After Survey Verification compared to Before Survey Calibration

	Zero			Cal		
	Before	After		Before	After	
Short	7.493	7.548	Ohm-m	99.615	98.604	Ohm-m
Long	677.412	673.391	Ohm-m	106.708	106.590	Ohm-m

Gamma Ray Calibration Report

Serial Number:
Tool Model:
Performed:

D1
ELOG
Fri Apr 29 12:39:01 2005

Calibrator Value:

162 GAPI

Background Reading:
Calibrator Reading:

167.616 cps
722.887 cps

Sensitivity:

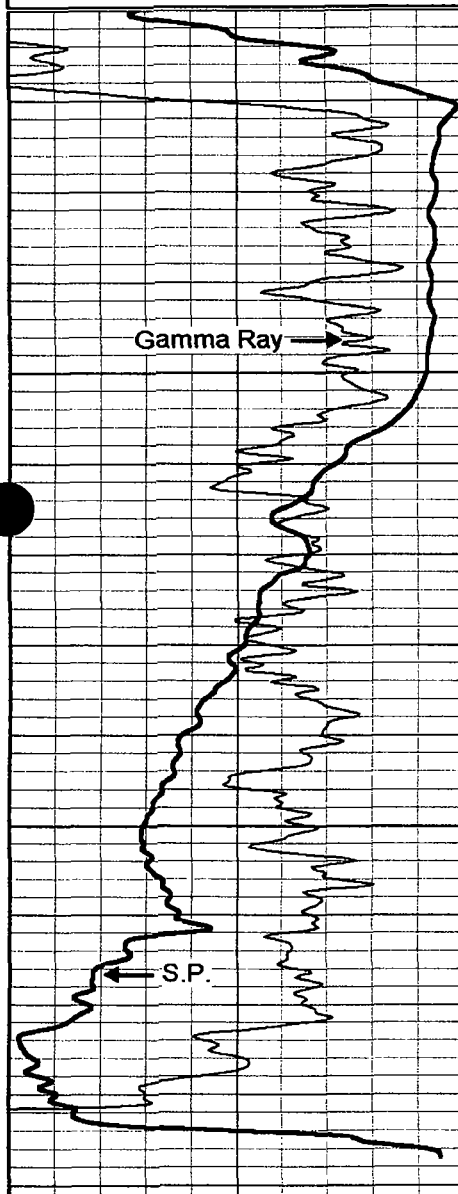
0.291746 GAPI/cps

Database File: 12104.db
 Dataset Pathname: WDC/PMW13/run1/Elog
 Presentation Format: ELOG2
 Dataset Creation: Fri Jul 01 09:28:54 2005 by Log 6.0
 Charted by: Depth in Feet scaled 1:240

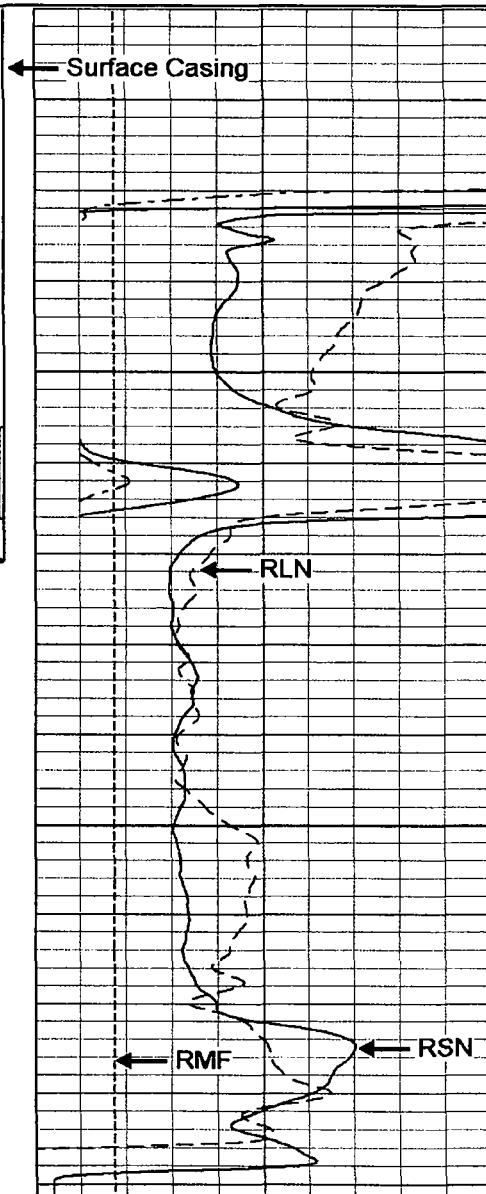
-95	S.P. (mV)	5
40	Gamma Ray (GAPI)	90

0	RLN (Ohm-m)	50
0	RSN (Ohm-m)	50
0	RMF (Ohm-m)	50
50	RSN (Ohm-m)	500
50	RLN (Ohm-m)	500

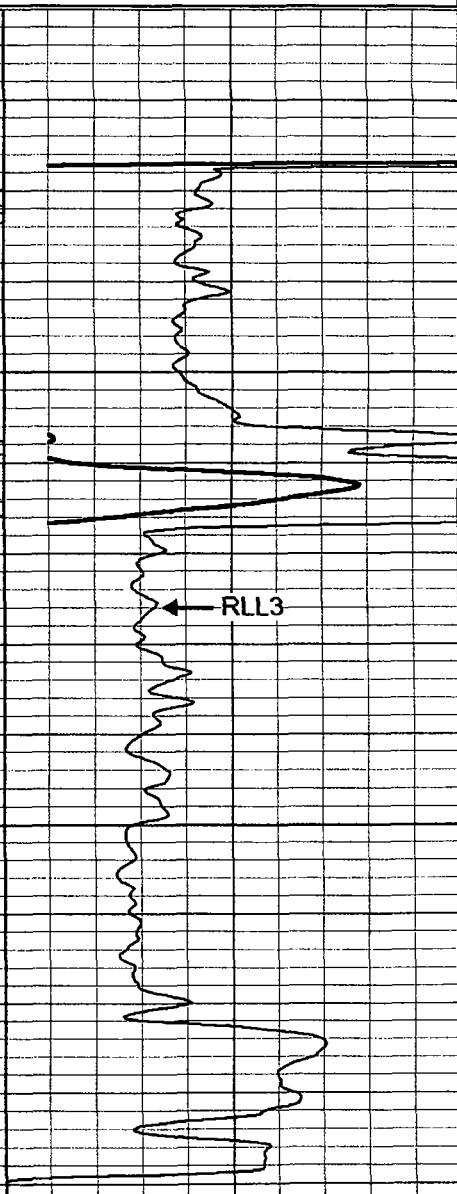
0	RLL3 (Ohm-m)	50
50	RLL3 X10 (Ohm-m)	500



-95	S.P. (mV)	5
40	Gamma Ray (GAPI)	90



0	RLN (Ohm-m)	50
0	RSN (Ohm-m)	50
0	RMF (Ohm-m)	50
50	RSN (Ohm-m)	500
50	RLN (Ohm-m)	500



0	RLL3 (Ohm-m)	50
50	RLL3 X10 (Ohm-m)	500

PACIFIC SURVEYS

LATEROLOG 3 GAMMA RAY

Job No.
12104

Company WDC EXPLORATION & WELLS

Well PMW-13

File No.

Field WHITTIER

County LOS ANGELES

State CA

Location:

12482 PUTNAM ST.

Other Services:

E-LOG
CALIPER

Sec. Twp. Rge.

Permanent Datum	G.L.		Elevation	
Log Measured From	G.L.	0'	above perm. datum	
Drilling Measured From	G.L.			

CDK
B.C.L.

Date	7-1-05		
Run Number	ONE		
Depth Driller	139'		
Depth Logger	139'		
Bottom Logged Interval	138'		
Top Log Interval	10'		
Casing Driller	9.5" @ 18'		
Casing Logger	18'		
Bil Size	9"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	7.8 @ 77F		
Rmf @ Meas. Temp	8.8 @ 77F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEAS		
Rm @ BHT	N/A		
Time Circulation Stopped	N/A		
Time Logger on Bottom	9:30 AM		
Max. Recorded Temperature	N/A		
Equipment Number	PS-2		
Location	L.A.		
Recorded By	LAPORTE		
Witnessed By	R. HALPERN		

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Comments

Gamma Ray Calibration Report

Serial Number:	13		
Tool Model:	GROH		
Performed:	Fri Apr 29 12:58:38 2005		
Calibrator Value:	192	GAPI	
Background Reading:	31.1611		
Calibrator Reading:	205.072		
Sensitivity:	0.931511	GAPI	

Simplec Long Guard Calibration Report

Serial Number:
Tool Model:
Performed:

81
M&W
Fri Apr 29 12:57:36 2005

System Reading

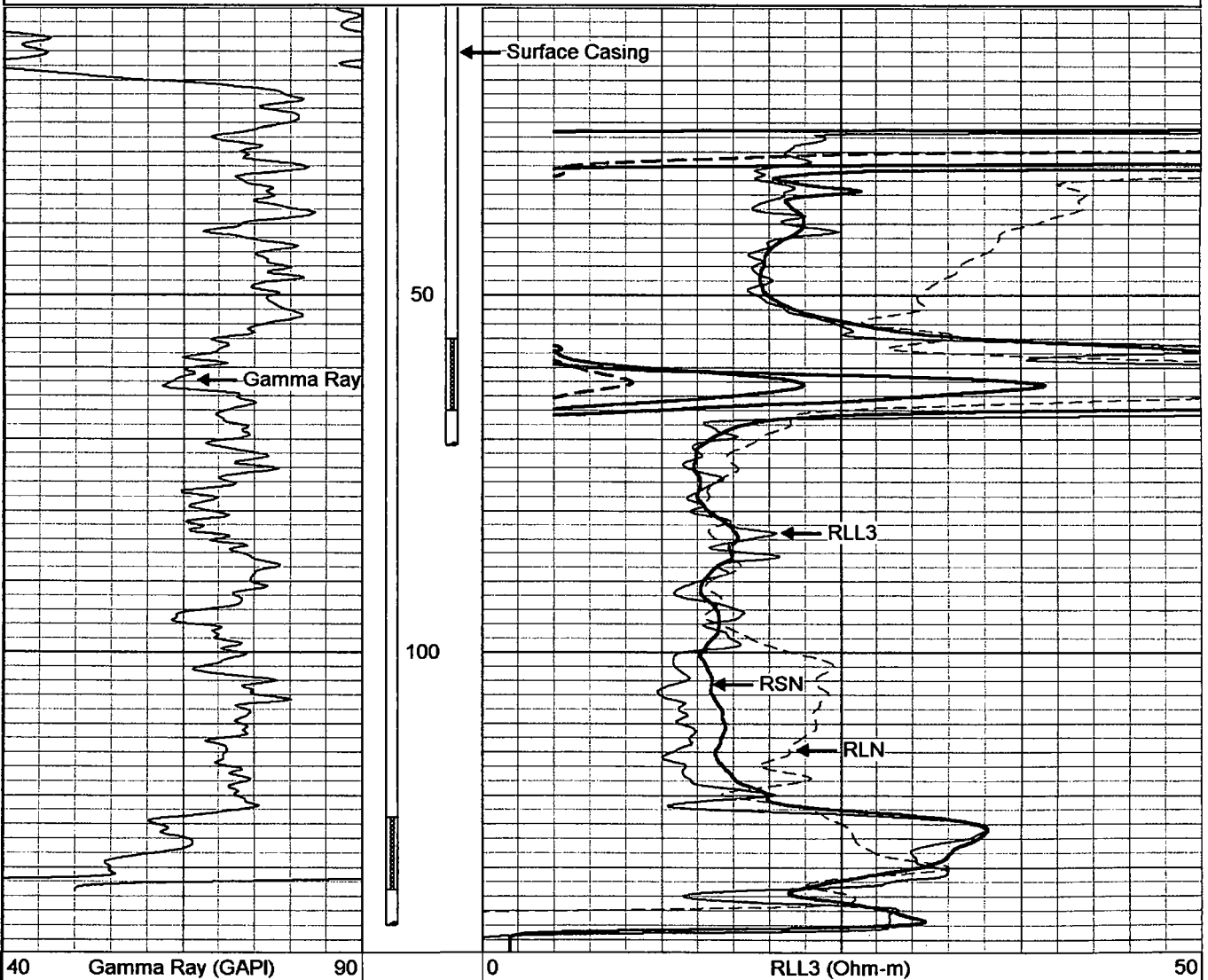
0.310
0.628
6.054
28.969
56.732

Calibration Reference

2.500 Ohm-m
5.000
50.000
250.000
500.000

Database File: 12104.db
Dataset Pathname: WDC/PMW13/run1/LL3F
Presentation Format: GUARD
Dataset Creation: Fri Jul 01 09:58:19 2005
Charted by: Depth in Feet scaled 1:240

40	Gamma Ray (GAPI)	90	0	RLL3 (Ohm-m)	50
			0	RSN (Ohm-m)	50
			0	RLN (Ohm-m)	50
			50	RLL3 X10 (Ohm-m)	500
			50	RSN X10 (Ohm-m)	500
			50	RLN X10 (Ohm-m)	500



0	RLL3 (Ohm-m)	50
0	RSN (Ohm-m)	50
0	RLN (Ohm-m)	50
50	RLL3 X10 (Ohm-m)	500
50	RSN X10 (Ohm-m)	500
50	RLN X10 (Ohm-m)	500

PACIFIC SURVEYS

CALIPER BOREHOLE VOLUMES

Job No.
12104

Company WDC EXPLORATION & WELLS

Well PMW-13

File No.

Field WHITTIER

County LOS ANGELES

State CA

Location:

12482 PUTNAM ST.

Other Services:

GR/LL3
E-LOG

Sec.

Twp.

Rge.

Permanent Datum	G.L.	Elevation	Elevation
Log Measured From	G.L.	0' above perm. datum	K.B.
Drilling Measured From	G.L.		D.F.
			G.L.

Date	7-1-05		
Run Number	ONE		
Depth Driller	139'		
Depth Logger	139'		
Bottom Logged Interval	138'		
Top Log Interval	0'		
Type Caliper	3 ARM		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
Max. Recorded Temp.	N/A		
pH/Fluid Loss	N/A		
Time Well Ready	9:30 AM		
Time Logger on Bottom	9:30 AM		
Equipment Number	PS-2		
Location	L.A.		
Recorded By	LAPORTE		
Witnessed By	R. HALPERN		

Borehole Record

Gravel Feed/Tubing Schedule

Run Number	Bit	From	To	Size	Type	From	To

Casing Schedule	Size	Wgt/Ft	Top	Bottom
Surface String	9.5"	COND	0	18'
Production String	2.5"	PVC	0	71'
Production String	2.5"	PVC	0	138'
Production String				
Production String				

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Comments

XY Caliper Calibration Report

Serial Number: SHORT
Tool Model: Comprobe
Performed: Fri Jul 01 09:57:34 2005

Small Ring: 8.6 in
Large Ring: 18.6 in

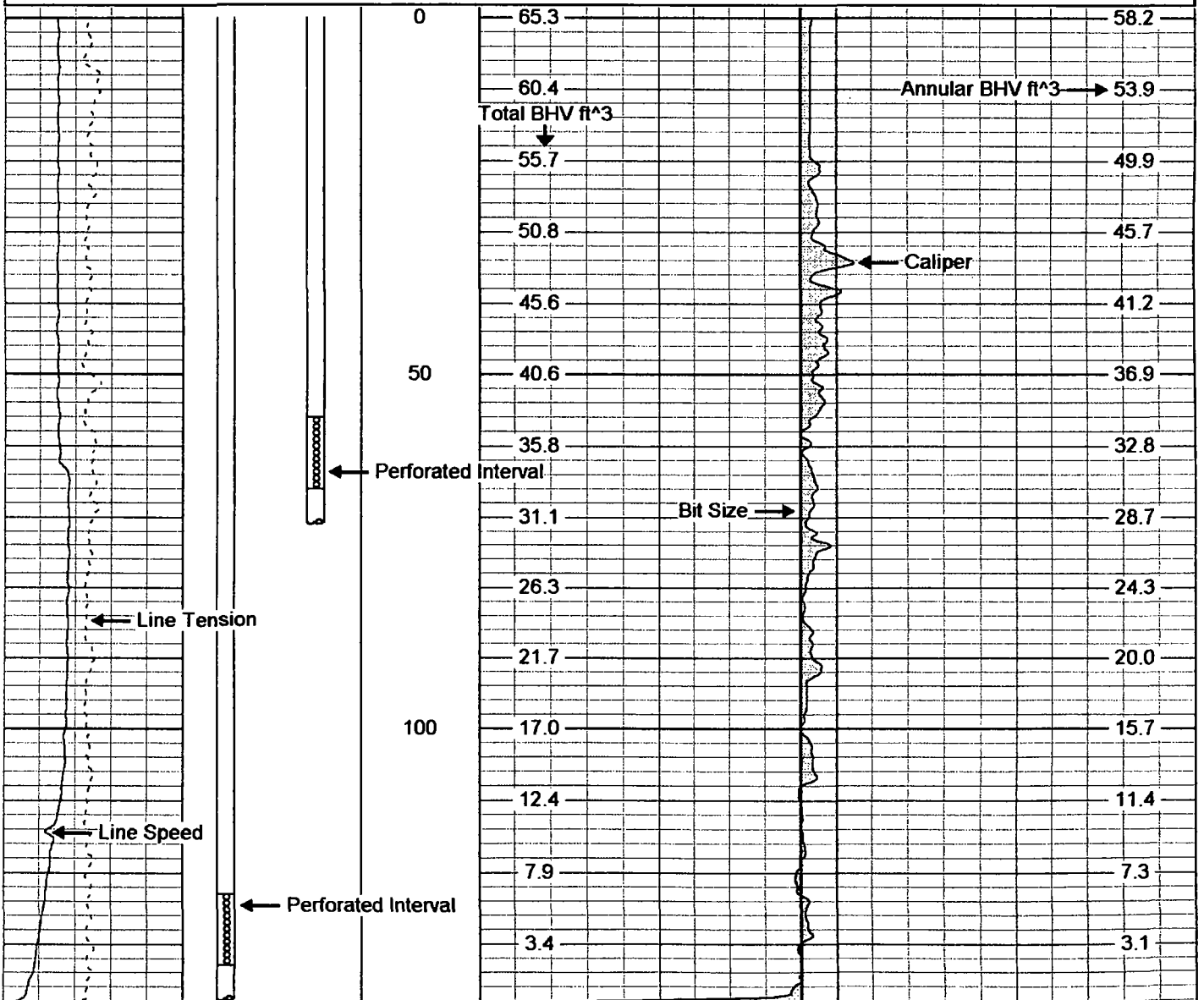
X Caliper Y Caliper

Reading with Small Ring: 929.6 cps
Reading with Large Ring: 1666.6 cps

Gain: 0.0135685
Offset: -4.0133

Database File: 12104.db
Dataset Pathname: WDC/PMW13/run1/CAL
Presentation Format: XYZ
Dataset Creation: Fri Jul 01 10:14:02 2005 by Log 6.0
Charted by: Depth in Feet scaled 1:240

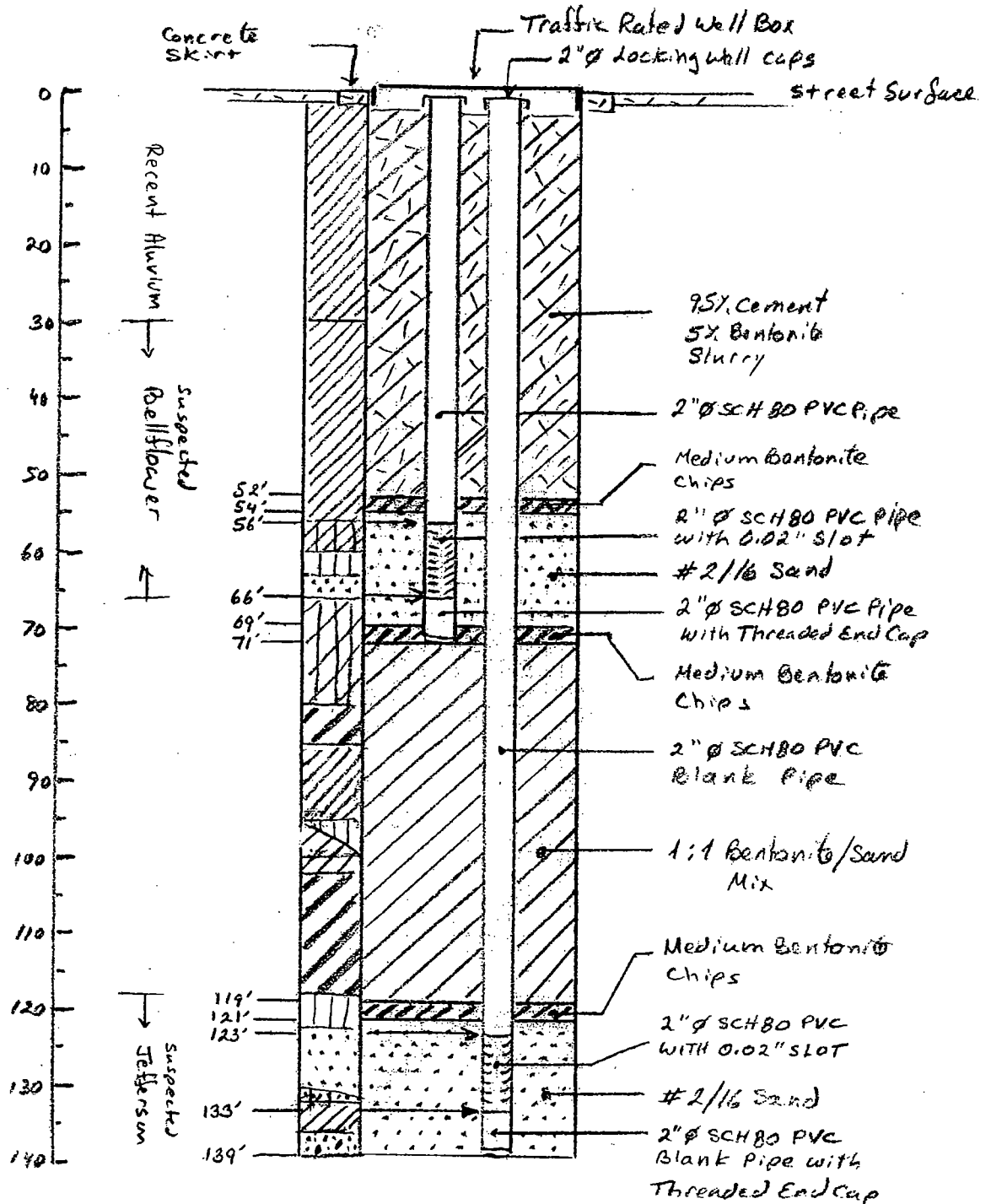
0 LSPD (ft/min)00	CSG SCHDL (ft)	0	Caliper (in)	20
0 LTEN (lb) 150		0	BIT SIZE (in)	20



0 LSPD (ft/min)00	CSG SCHDL (ft)	0	Caliper (in)	20
0 LTEN (lb) 150		0	BIT SIZE (in)	20

Well Construction Diagram MW13

Omega Chemical Co.



Key

	CH - high plasticity clay
	CI - low plasticity clay
	MI-CI Silty Clay/clayey silt
	MI low plasticity silt
	SM Silty Sand
	SP poorly graded sand
	SW well graded sand

ARCADIS

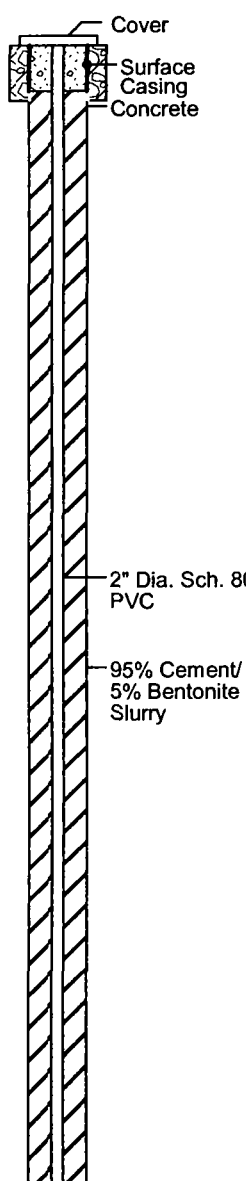
**ARCADIS**

Infrastructure, environment, facilities

LOG OF BORING MW14

(Page 1 of 4)

Omega Chemical Operable Unit 2
Project No. CA000646.0001Date Completed : May 5, 2006
Logged By : Jeremy Cook
Checked By : Ronald Halpern
Drilling Company : WDC
Drill Rig : Sonic SpeedStar 15KOVA : MiniRae
Driller :
Drilling Method : Sonic
Diameter : 6"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
0									Asphaltic concrete to ~6", aggregate base to 1 ft.	
									SILTY CLAY, hard, dark brown (10YR 3/3), moist, no odor.	
5									SILTY CLAY, hard, dark yellowish brown (10YR 4/4), slightly moist, friable.	
10										
15							CL		Same as above.	
20				11:50						
25										

DESCRIPTION OF BORING LOCATION: In parking lot, southeast corner of 12393 Washington Boulevard -
Oncology Center (part of Presbyterian Intercommunity).

NOTES: Elevation is of ground surface.

09-07-2006 G:\COMMON\MTech\5\Omegamega Chemical\MW-14.BOR

LOG OF BORING MW14

(Page 2 of 4)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed	: May 5, 2006	OVA	: MiniRae
Logged By	: Jeremy Cook	Driller	:
Checked By	: Ronald Halpern	Drilling Method	: Sonic
Drilling Company	: WDC	Diameter	: 6"
Drill Rig	: Sonic SpeedStar 15K	Calibration Gas/Conc	: 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
25									(20-37') SILTY CLAY, medium stiff to stiff, dark yellowish brown (10YR 4/4), moist.	
30							CL			
35				12:45						
40							ML		(37-42.5'): Low plasticity SILT with CLAY, medium stiff, light olive brown (2.5Y 5/4), slightly moist, low toughness, moderate to rapid dilatency.	
45									(42-46'): Non plastic SILT, soft to medium stiff, olive brown (2.5Y 4/3), slightly moist.	
50							SP-SM		(46-55'): Poorly graded SAND with SILT, ~10%-20% silt, 80-90% very fine sand (<0.5 mm diameter), olive (5Y 5/3), slightly moist.	

Well: MW14
Elev.: 172.98

2" Dia. Sch. 80
PVC
95% Cement/
5% Bentonite
Slurry

DESCRIPTION OF BORING LOCATION: In parking lot, southeast corner of 12393 Washington Boulevard - Oncology Center (part of Presbyterian Intercommunity).

NOTES: Elevation is of ground surface.

LOG OF BORING MW14

(Page 3 of 4)

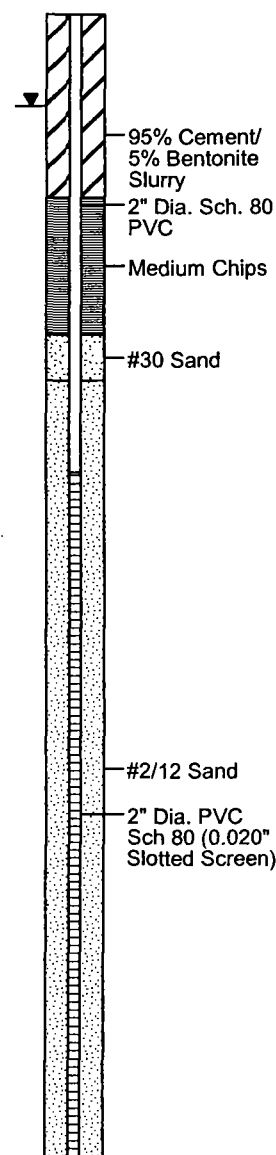
Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 5, 2006
Logged By : Jeremy Cook
Checked By : Ronald Halpern
Drilling Company : WDC
Drill Rig : Sonic SpeedStar 15K

OVA : MiniRae
Driller :
Drilling Method : Sonic
Diameter : 6"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
50				13:13			SP-SM		Wet from ~52'.	
55			OC2-PMW14 W-0-3	15:40			SP		(55-57'): Poorly graded SAND, ~5% Silt, 95% fine to medium sand (max. 2 mm diameter), olive brown, wet.	
60				14:30			SW		(57-58'): Well graded SAND with Gravel, ~20-30% fine and coarse igneous and metamorphic subrounded gravel (max. 55 mm diameter), ~70% fine to coarse subangular sand (max 5 mm diameter), olive brown, wet to saturated. (58-60'): Poorly graded SAND, predominantly fine to medium (~80-90%), ~10-20% coarse sand; olive brown to dark olive brown (2.5Y 3/3 to 4/3), wet.	
65			OC2-PMW14 W-0-06	5/6/06			SP		(60-65'): Poorly graded SAND with Gravel: ~15-20% subangular gravel, ~80-85% predominantly fine to medium grained sand (<2 mm) and some coarse (<5 mm), micaceous. (65-73'): Poorly graded SAND with Gravel ~15-20%: subangular to rounded, gravel, ~80-85% poorly graded medium to coarse sand (0.5 mm - 3 mm diameter) subangular quartz feldspar, micaceous	
70			No Water Recovered						(73-75'): Poorly graded SAND with Gravel, ~10-15% subrounded-subangular gravel, 85-90% poorly graded fine to medium sand (0.01-1 mm diameter) well rounded to subrounded; predominantly quartz, plagioclase, and micas.	
75										

Well: MW14
Elev.: 172.98



DESCRIPTION OF BORING LOCATION: In parking lot, southeast corner of 12393 Washington Boulevard - Oncology Center (part of Presbyterian Intercommunity).

NOTES: Elevation is of ground surface.

**ARCADIS**

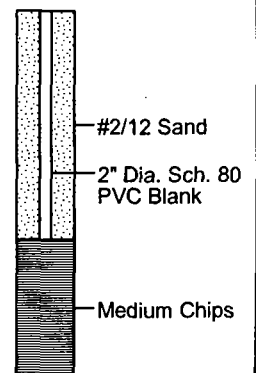
Infrastructure, environment, facilities

LOG OF BORING MW14

(Page 4 of 4)

Omega Chemical Operable Unit 2
Project No. CA000646.0001Date Completed : May 5, 2006
Logged By : Jeremy Cook
Checked By : Ronald Halpern
Drilling Company : WDC
Drill Rig : Sonic SpeedStar 15KOVA : MiniRae
Driller :
Drilling Method : Sonic
Diameter : 6"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
75	X	No	Water Recovered				SP		(75-76'): Poorly graded SAND with Gravel, 15-30% gravel (10-30 mm diameter), 70-85% fine to medium Sand (<2 mm), some coarse.
							MH		(76-77'): Plastic SILT with Clay, brown (10YR 4/3), wet, oxidation stains in Clay.
							ML-SP		(77-80'): Nonplastic SILT, bordering very fine sand (0.05-1 mm); oxidation staining\micaceous.
80							ML		(80-83'): SILT, stiff.
Bottom of boring at 83'.									
85									
90									
95									
100									

Well: MW14
Elev.: 172.98DESCRIPTION OF BORING LOCATION: In parking lot, southeast corner of 12393 Washington Boulevard -
Oncology Center (part of Presbyterian Intercommunity).

NOTES: Elevation is of ground surface.

LOG OF BORING MW15

(Page 1 of 4)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed	: August 11, 2005	OVA	: Thermo
Logged By	: Ronald Halpern, PG	Driller	:
Checked By	: Ronald Halpern, PG	Drilling Method	: Sonic
Drilling Company	: WDC	Diameter	: 6 1/4"
Drill Rig	: Sonic SpeedStar 15K	Calibration Gas/Conc	: 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
0									Asphalt to 6" and underlying base to 1'.	Cover
5							ML		(8-13' core): SILT, soft (>1" penetration), moist to wet, no odor.	Surface Casing Concrete
10										
15				12:58			CL		Change in consistency at 13', soft to medium stiff. (13 to 18' core): SILTY CLAY, medium stiff (1/4-1/2" penetration), moist, dark yellowish brown (10YR 3/6), caliche from 14.5-18'.	95% Cement/ 5% Bentonite
20									Same as above - stiff.	2" Dia. Sch. 80 PVC
25										

Boring located in northbound right lane of Chetle Avenue in front of 8550A Chetle Avenue. Elevation noted in ground surface.

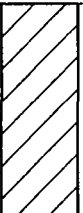

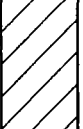


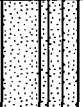
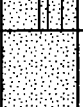
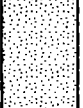
LOG OF BORING MW15

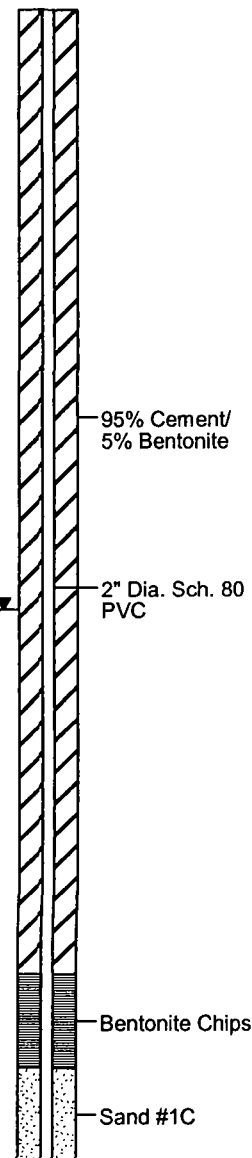
(Page 2 of 4)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : August 11, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Sonic SpeedStar 15K

OVA : Thermo
Driller :
Drilling Method : Sonic
Diameter : 6 1/4"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	Well: MW15 Elev.: 148.57
25							CL		Same as above - very stiff.	
30							ML		Same as above.	
							CL		Poorly graded SANDY SILT, with Clay, ~30% fine Sand, ~70% Silt w/Clay, hard, moist, dark yellowish brown (10YR 4/6).	
35							CL		SILTY CLAY, very stiff, moist, dark brown (10YR 3/3).	
				13:17			SP-SM		(36-38' core): Poorly graded SAND with SILT, 85% fine-grained, 15% Silt, moist, brown (10YR 4/3), micaceous, wet at 38 feet.	
40							SM-ML		(38-42' core): Poorly graded SILTY SAND/SANDY SILT, ~40-60% fine Sand, ~40-60% Silt, soft, saturated, olive brown (2.5Y 4/3).	
			OC2-MW15 W-0-03	13:35			SP-SM		(42-43'): Poorly graded SAND with SILT, ~10-20% Silt, 80-90% fine to medium soft, saturated, olive brown (2.5Y 4/3). (43-45' Simulprobe): Poorly graded SAND-fine, saturated, olive brown (2.5Y 4/3).	
45				15:24			SP		(48-50'): Poorly graded SAND, ~66% fine, 34% medium to coarse sand (max 5 mm dia.), brown, saturated, subrounded.	
50			OC2-PMW12 W-0-05	17:10						



Boring located in northbound right lane of Chetle Avenue in front of 8550A Chetle Avenue. Elevation noted in ground surface.

**ARCADIS**

Infrastructure, environment, facilities

LOG OF BORING MW15

(Page 3 of 4)

Omega Chemical Operable Unit 2
Project No. CA000646.0001Date Completed : August 11, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Sonic SpeedStar 15KOVA : Thermo
Driller :
Drilling Method : Sonic
Diameter : 6 1/4"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
50							SP		(50-53.5'): Poorly graded SAND, predominantly fine-grained as above, yellowish brown (10YR 5/6) to dark yellowish brown.	
55							ML		(53.5-54.4'): Poorly graded SAND, predominantly fine (50%), medium (25%), coarse (25%), saturated, yellowish brown to dark yellowish brown (10YR 5/6-4/6). (54.4-56.8'): SILT, medium stiff, moist to wet, light olive brown (2.5Y 5/4), (horizontally laminated).	
60			OC2-PMW12 W-0-07	Stop 8/10/05 8/11/05 7:30			SW		(56.8-61' Simulprobe): Well graded SAND, fine to coarse, occasional Gravel-subrounded, saturated, olive brown (2.5Y 4/4).	
65							SP		(61-70' core): Poorly graded SAND, predominantly fine to lower-end medium-grained (max 1 mm dia.), occasional coarse sand, fine and coarse gravel (max. 30 mm dia.), light olive brown (2.5Y 5/3), wet.	
70			Simulprobe OC2-PMW12 W-0-08	8:15 9:25			ML		(70-72' Simulprobe): Same as above.	
75							SP		(72-73' core): SILT, medium stiff, (~1/4" penetration), wet, olive brown (2.5Y 4/4), micaceous.	
							ML		(73-74' core): Poorly graded SAND, fine-grained, wet, olive brown (2.5Y 4/3), micaceous.	

Well: MW15
Elev.: 148.572" Dia. PVC
Sch 80 (0.020"
Slotted Screen)

Sand #1C

2" Dia. Sch. 80
PVC Blank

09-07-2006 G:\COMMON\Tech5\Omega Chemical\MW-15 BOR

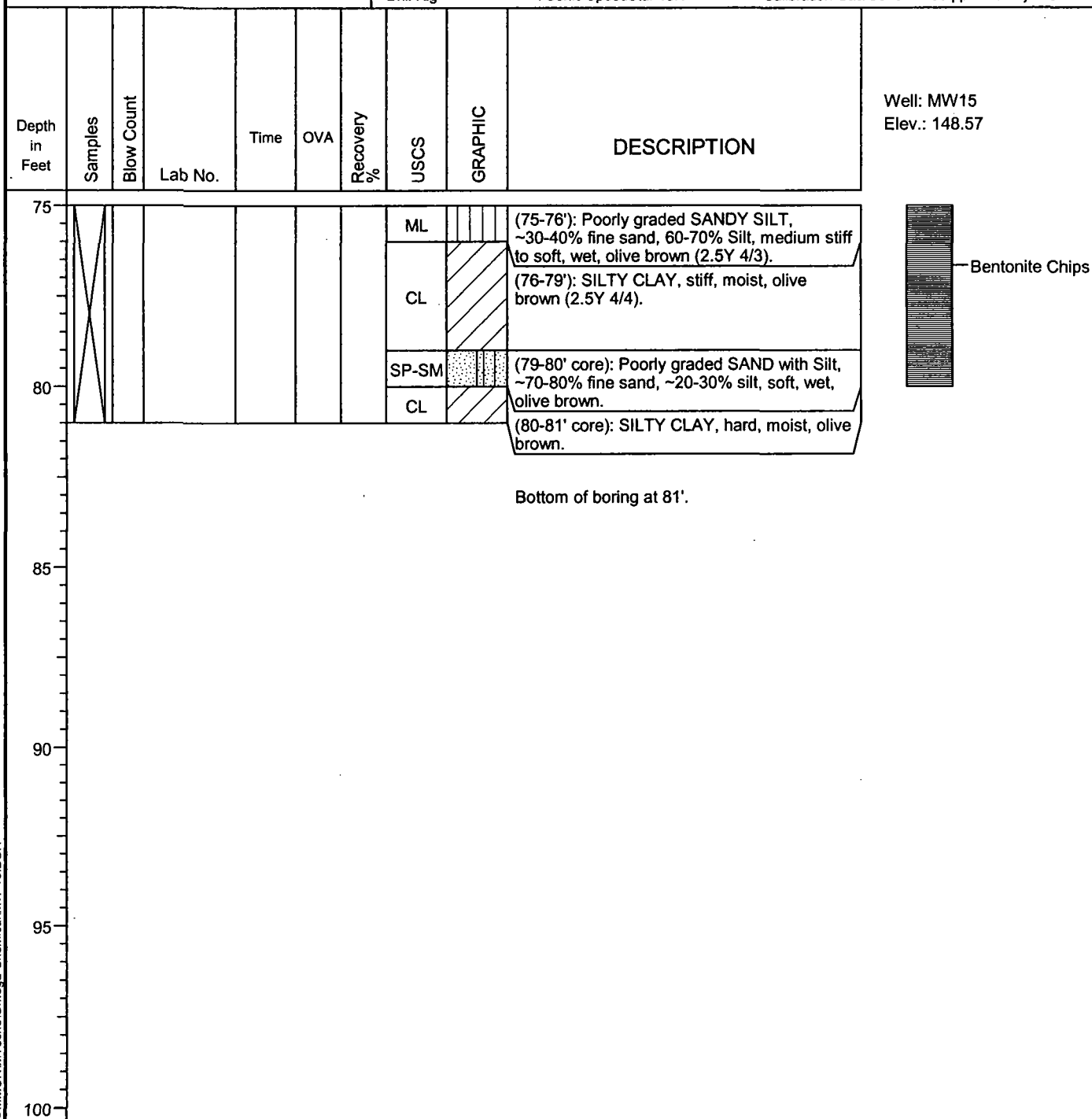
Boring located in northbound right lane of Chetle Avenue in front of 8550A Chetle Avenue. Elevation noted in ground surface.

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Infrastructure, environment, facilities

LOG OF BORING MW15

(Page 4 of 4)

Omega Chemical Operable Unit 2
Project No. CA000646.0001Date Completed : August 11, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Sonic SpeedStar 15KOVA : Thermo
Driller :
Drilling Method : Sonic
Diameter : 6 1/4"
Calibration Gas/Conc : 100 ppm isobutylene

Boring located in northbound right lane of Chetle Avenue in front of 8550A Chetle Avenue. Elevation noted in ground surface.

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ARCADIS
Infrastructure, environment, facilities

LOG OF BORING MW16

(Page 1 of 8)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : June 3, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : GF Star 30

OVA : MiniRae
Driller : Mark Green
Drilling Method : Mud Rotary
Diameter : 8 3/4"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
0				5/27/05 12:00				T T T	Sod	Well1: MW16A Well2: MW16B Well3: MW16C Elev.: 153.19
5							ML		SILT with CLAY, (~5-10% clay), soft to medium stiff, dark yellowish brown (10YR 3/4), moist, no odor.	Cover Surface Casing
10										95% Cement/ 5% Bentonite
15									Off cyclone @14'; SAND, poorly graded: ~95-98% fine to medium-grained (max diam. 1 mm); dark yellowish brown (10YR 4/4), moist, no odor.	2" Dia. Sch. 80 PVC Blank
20							SP		Set drive casing to 20'.	2" Dia. Sch. 80 PVC Blank
25										

In the greenbelt on the east side of Dice Road, approximately 85 feet north of the centerline intersection with Altamar Place.

NOTES:

Elevation = ground surface; A = Shallow, B = Intermediate, C = Deep Well.

09-07-2005 COMMONM/Tech5/Omega Chemical/MW-16 BOR

LOG OF BORING MW16

(Page 2 of 8)

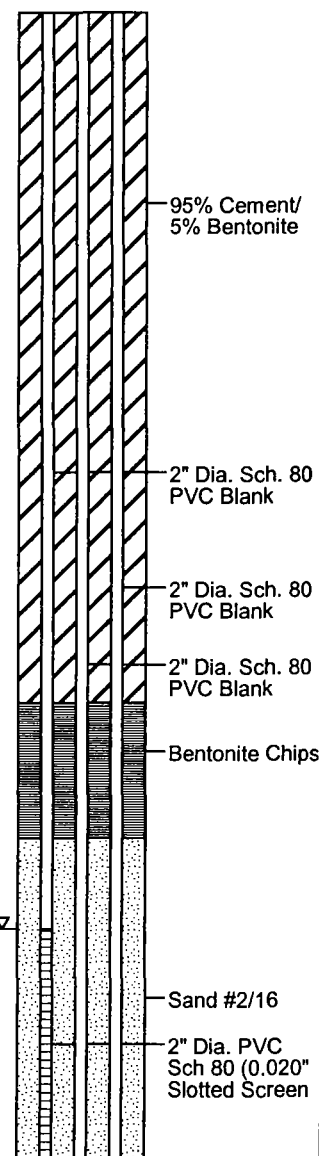
Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : June 3, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : GF Star 30

OVA : MiniRae
Driller : Mark Green
Drilling Method : Mud Rotary
Diameter : 8 3/4"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
25							SP		
30	X			14:29	1.3		ML-CL		Off split spoon @ 30-31.5. CLAYEY SILT to SILTY CLAY; soft, light olive brown (2.5Y 5/4), moist, no odor; moderate dilatancy, moderate toughness, moderate to high plasticity.
35									
40	X			14:58			SP-SM		(Off Shaker): Poorly graded SAND with Silt; ~10-15% Silt, ~85-90% predominately fine-grained sand, some medium-grained (max 1 mm diam.), light olive brown (2.5Y 4/3 to 4/4). Same as above, moist to wet, no odor. Stopped drilling 5/27/05 at 15:15
45				5/31/05 8:40			SP		(Off Shaker) 43-47": Poorly graded SAND, predominantly fine to medium grained (max 1 mm diam), occasional fine gravel (<1%; max diam 7 mm); brown.
50							SP-SM		(Off Shaker) 47-50": Poorly graded SAND with Silt-Silty Sand: ~5-15% silt, 85-95% predominantly very fine to fine sand; olive brown.

Well1: MW16A
Well2: MW16B
Well3: MW16C
Elev.: 153.19



In the greenbelt on the east side of Dice Road, approximately 85 feet north of the centerline intersection with Altamar Place.

NOTES:

Elevation = ground surface; A = Shallow, B = Intermediate, C = Deep Well.

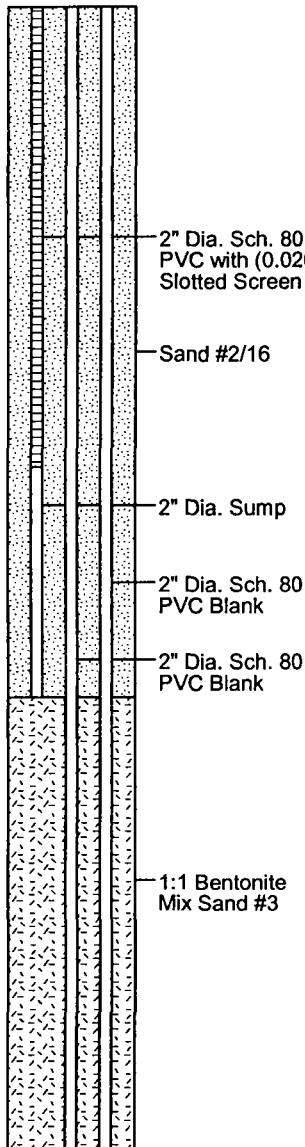
LOG OF BORING MW16

(Page 3 of 8)

 Omega Chemical Operable Unit 2
 Project No. CA000646.0001

 Date Completed : June 3, 2005
 Logged By : Ronald Halpern, PG
 Checked By : Ronald Halpern, PG
 Drilling Company : WDC
 Drill Rig : GF Star 30

 OVA : MiniRae
 Driller : Mark Green
 Drilling Method : Mud Rotary
 Diameter : 8 3/4"
 Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
50	X		No Water Recovery	9:04	1.4	100	SW		50.25-50.75 (off split spoon). Well graded SAND with Silt: ~10-15% silt, ~85-90% fine to coarse sand (max 5 mm dia.), occasional fine gravel; dark yellowish brown (10YR 4/4) to brown (10YR 4/3), saturated.	Well1: MW16A Well2: MW16B Well3: MW16C Elev.: 153.19
							ML			
55	X		OC2-PMW16 W-0-04	12:56			GP		At 50.75-51.5 (off split spoon); SILT, medium stiff, yellowish brown (10YR 5/6) to dark olive brown (2.5Y 3/3), wet, no odor.	
							SP		At 53'; Poorly graded GRAVEL, ~10% fine to medium sand, ~85% fine subrounded, igneous gravel, ~5% silt.	
									56-57 (off split spoon). Poorly graded SAND, fine to medium-grained (max ~0.75 mm dia.); olive (5Y 4/4), saturated.	
60	X		OC2-PMW16 W-0-06	14:30					Non plastic SILT; medium stiff, olive brown (2.5Y 4/3), wet; occasional subrounded fine gravel.	 2" Dia. Sch. 80 PVC with (0.020" Slotted Screen Sand #2/16 2" Dia. Sump 2" Dia. Sch. 80 PVC Blank 2" Dia. Sch. 80 PVC Blank 1:1 Bentonite Mix Sand #3
65										
							ML			
70	X		OC2-PMW16 W-0-07 OC2-PMW16 W-1-08	15:50					70.5-71.5' (Off split spoon): Non plastic SILT, soft to medium stiff, olive brown (2.5Y 4/3), moist, bands of iron oxide staining; micaceous.	
75										

In the greenbelt on the east side of Dice Road, approximately 85 feet north of the centerline intersection with Altamar Place.

NOTES:

Elevation = ground surface; A = Shallow, B = Intermediate, C = Deep Well.

LOG OF BORING MW16

(Page 4 of 8)

 Omega Chemical Operable Unit 2
 Project No. CA000646.0001

 Date Completed : June 3, 2005
 Logged By : Ronald Halpern, PG
 Checked By : Ronald Halpern, PG
 Drilling Company : WDC
 Drill Rig : GF Star 30

 OVA : MiniRae
 Driller : Mark Green
 Drilling Method : Mud Rotary
 Diameter : 8 3/4"
 Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
75										Well1: MW16A Well2: MW16B Well3: MW16C Elev.: 153.19
80	X		OC2-PMW16 W-0-09	17:35			ML		80.5-81.5' (Off split spoon): SILT with CLAY; medium stiff, light olive brown (2.5Y 5/4), wet; some iron oxide banding, micaceous. Increased CLAY content.	
90	X		OC2-PMW16 W-0-10	6/1/05 8:40			SM		Stopped drilling 5/31/05 at 18:00. Resumed 6/1/05. Off split spoon. Poorly graded SILTY SAND, ~10-15% silt, ~75% predominantly fine to medium grained (max 1 mm dia.), occasional (~3-5%) coarse sand (~4 mm dia.) and ~5% fine gravel (max dia. 30 mm); olive brown (2.5Y 4/3), saturated. Off shaker. Same as above. ~5% coarse sand, 5% fine gravel.	1:1 Bentonite Mix Sand #3 2" Dia. Sch. 80 PVC Blank 2" Dia. Sch. 80 PVC Blank
95							SW		Increasing grain size - grades into well graded SAND, fine to coarse (max 5 mm), occasional fine gravel (max 20 mm), dark grayish brown (10YR 4/2), saturated, subrounded grains. Change in soil type observed at 100.5.	
100										

 In the greenbelt on the east side of Dice Road, approximately 85 feet north of the centerline intersection
 with Altamar Place.

NOTES:

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LOG OF BORING MW16

(Page 5 of 8)

 Omega Chemical Operable Unit 2
 Project No. CA000646.0001

 Date Completed : June 3, 2005
 Logged By : Ronald Halpern, PG
 Checked By : Ronald Halpern, PG
 Drilling Company : WDC
 Drill Rig : GF Star 30

 OVA : MiniRae
 Driller : Mark Green
 Drilling Method : Mud Rotary
 Diameter : 8 3/4"
 Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
100	X		No Water Recovery Mud	9:50	0.2		SW		(Off split spoon): SILTY CLAY; stiff, brown (10YR 4/3), moist, no odor; occasional yellowish red (5YR 4/4), staining, (possible iron oxide), high toughness, moderate plastic, no dilatency, positive ribbon test.	1:1 Bentonite Mix Sand #3
105							CL			Bentonite Chips
110	X		No Water Recovery Mud	12:00	0.1		SC		(Off shaker and mud pan), CLAYEY SAND: well graded, ~35-45% clay, ~45-55% fine to coarse sand (max 5 mm dia.), ~10% fine gravel (max 15 to 18 mm dia.); very dense; olive brown clay matrix; saturated; sand is subrounded, fine gravel platy and subangular of igneous origin.	2" Dia. Sch. 80 PVC Blank
115	X		No Water Recovery Mud	13:35	0.1		GP		111-112' (Off split spoon): Poorly graded GRAVEL with Sand: ~60% fine gravel (max 18 mm dia.) ~40% fine to coarse sand (max 5 mm dia.), of igneous origin, subrounded to subangular.	2" Dia. PVC Sch 80 (0.020" Slotted Screen)
	X		No Water Recovery Mud				GW		Well graded GRAVEL with Sand: ~60% fine and coarse gravel (max 30 mm) ~40% fine to coarse sand.	Sand #3
120	X		OC2-PMW16 W-0-12	14:40	0.6		ML		114-114.25' (Off split spoon): Non plastic SILT; medium stiff, olive brown, wet.	2" Dia. Sch. 80 PVC Blank
125									CLAYEY SILT: ~60-90% silt, 10-40% clay, light olive brown (2.5Y 5/4), moist, no odor; brittle, low toughness, low to moderate plasticity, rapid to moderate dilatency, sticky.	2" Dia. Sump

In the greenbelt on the east side of Dice Road, approximately 85 feet north of the centerline intersection with Altamar Place.

NOTES:

Elevation = ground surface; A = Shallow, B = Intermediate, C = Deep Well.

LOG OF BORING MW16

(Page 6 of 8)

 Omega Chemical Operable Unit 2
 Project No. CA000646.0001

 Date Completed : June 3, 2005
 Logged By : Ronald Halpern, PG
 Checked By : Ronald Halpern, PG
 Drilling Company : WDC
 Drill Rig : GF Star 30

 OVA : MiniRae
 Driller : Mark Green
 Drilling Method : Mud Rotary
 Diameter : 8 3/4"
 Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
125									(off shaker). Same as above.	Well1: MW16A Well2: MW16B Well3: MW16C Elev.: 153.19
130	X		OC2-PMW16 W-0-14	16:20			ML		130-131.5' (Off split spoon): SILT; firm, olive brown (2.5Y 4/4), moist; micaceous, borderline very fine sand, rolls, low toughness, rapid dilatency, low plasticity. Set Simulprobe at 16:40 at 132-134'. Stopped drilling 6/1/05. Resume 6/2/05.	
	X			16:40			GP-GC		132-133.5 (Off split spoon). Poorly graded GRAVEL with Clay: ~80-90% fine subrounded to subangular gravel (max 20 mm dia.), occasional coarse gravel (max 25 mm dia.) in an olive brown (2.5Y 4/3) silty clay matrix; stiff moist, no odor; gravel of igneous origin.	
135				6/2/05 7:00	0.2		ML		From 133.5 - SILT, stiff, olive brown (2.5Y 4/3), moist, no odor.	1:1 Bentonite: Sand #3 Mix
140	X		OC2-PMW16 W-0-15	7:15			SP		140.5-141.5: Poorly graded SAND, fine-grained (max dia. ~0.1-0.2 mm); olive brown (2.5Y 6/3), moist, no odor.	2" Dia. Sch. 80 PVC Blank
				8:30			CL		145' (off mud pan); CLAY with Sand, ~10-15% fine to coarse sand in silty clay matrix; olive brown (2.5Y 4/3).	Bentonite Chips
145							SP		149' Off mud pan: Poorly graded SAND, fine to medium (max 2 mm dia.), subrounded.	Sand #2/16
150										2" Dia. PVC Sch 80 (0.020") Slotted Screen

In the greenbelt on the east side of Dice Road, approximately 85 feet north of the centerline intersection with Altamar Place.

NOTES:

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ARCADIS
Infrastructure, environment, facilities

LOG OF BORING MW16

(Page 7 of 8)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : June 3, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : GF Star 30

OVA : MiniRae
Driller : Mark Green
Drilling Method : Mud Rotary
Diameter : 8 3/4"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
150	X		No Water Recovery	11:36	0.1		GP		151-151.5 (off split spoon): Poorly graded GRAVEL: predominantly fine (max 19 mm dia.), occasional coarse (max 25 mm dia.), subrounded igneous source (plag, mafic, minerals).	<p>Well1: MW16A Well2: MW16B Well3: MW16C Elev.: 153.19</p> <p>2" Dia. Sch. 80 PVC with (0.020" Slotted Screen</p> <p>Sand #2/16</p> <p>2" Dia. Sump</p>
155	X		No Water Recovery	14:00			SP		151.5 to 152 (off split spoon): Poorly graded SAND: predominantly fine grained (~10-15% medium <1 mm dia.), dense, olive brown (2.5Y 4/4), wet. 154-155' (off split spoon): Poorly graded SAND: fine to medium grained (max 1 mm dia.), olive brown (2.5Y 4/4) to light olive brown (2.5Y 5/4), wet.	
160	X		OC2-PMW16 W-0-16	15:50	0.1		SP-SM		At 160-162 off split spoon. Same as above. ~10-20% silt, 80-90% fine to medium sand (max 2 mm dia.), dark grayish brown (2.5Y 4/2), wet.	
165										
170	X		OC2-PMW16 W-0-19	16:45 6/3/05 7:15			CL		Driller indicates change in soil type at 170' based on drilling conditions/clay on drill bit. Change also observed on shaker. Stopped drilling 6/2/05 at 16:45 at 170'. Simulprobe set overnight. 170-172 (off split spoon); SILTY CLAY, very stiff, dark yellowish brown (10YR 4/4 to 4/6), moist, light bluish gray (Gley 2 8/1) artifacts, (marine?); some blackish artifacts-possibly decayed organic; moderate to high toughness, no dilatency, moderate to high plasticity, low liquid limit, high dry strength.	
175										

In the greenbelt on the east side of Dice Road, approximately 85 feet north of the centerline intersection with Altamar Place.

NOTES:

Elevation = ground surface; A = Shallow, B = Intermediate, C = Deep Well.

09-07-2006 C:\COMMON\MTech5\Omega Chemical\MW-16.BOR



ARCADIS

Infrastructure, environment, facilities

LOG OF BORING MW16

(Page 8 of 8)

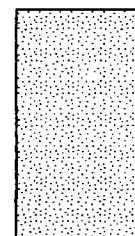
Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : June 3, 2005
Logged By : Ronald Halpern, PG
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Drilling Company : WDC
Drill Rig : GF Star 30

OVA : MiniRae
Driller : Mark Green
Drilling Method : Mud Rotary
Diameter : 8 3/4"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
175									
180	X			8:17			CL		Same as above, very stiff to hard, strong brown (7.5YR 5/6-4/6), slightly moist. Bottom of boring at 182'.
185									
190									
195									
200									

Well1: MW16A
Well2: MW16B
Well3: MW16C
Elev.: 153.19



Sand #2/16

In the greenbelt on the east side of Dice Road, approximately 85 feet north of the centerline intersection with Altamar Place.

NOTES:

Elevation = ground surface; A = Shallow, B = Intermediate, C = Deep Well.

09-07-2006 GISCOMMONMTech\Omega Chemical\MW-16 BOR

PMW16

SAMPLE IDENTIFICATION LOG

Date	Time	Operable Unit	Well Location	Sampled Medium (Water or Soil)	Sample Type (0 thru 6)	Sequential Sample No.	Remarks
Sample Type: 0 - Primary Sample; 1 - Field Duplicate; 2 - Field Blank; 3 - Equipment Blank							
4 - Trip Blank; 5 - MS/MSD; 6 - Regulatory Split.							
5/31/05	7:30	OC2	PMW16	W	4	01	Trip
	7:30	OC2	PMW16	W	2	02	Field Blank
		OC2	PMW16	W	0	03	dry
	8:40	OC2	PMW16	W	3	03	Equip blank - Simul prep
	12:56	OC2	PMW16	W	0	04	5x40ml VOA @ 57' - silty
		OC2	PMW16	S	0	05	Soil Sample 56-56.5
	14:30	OC2	PMW16	W	0	06	1x40ml VOA @ 62'
	15:50	OC2	PMW16	W	0	07	3x40ml VOA @ 72'
	15:50	OC2	PMW16	W	1	08	Dup 3x40ml VOA @ 72' sl. silty
	16:40	OC2	PMW23	W	B.m.2	02	Any wash sample in B.m.2
	17:10	OC2	PMW23	W	B.m.1	02	with acetate in B.m.1
	17:35	OC2	PMW16	W	0	09	4x40ml VOA @ 82'
6/1/05	8:40	OC2	PMW16	W	0	10	6x40ml VOA @ 92' very silty drill mud?
		OC2	PMW16	W	4	11	Trip (1x40ml VOA)
	14:40	OC2	PMW16	W	0	12	@ 123' 2x40ml VOA - clay (not drill mud)
6/2/05	08:00	OC2	PMW16	W	4	13	Trip
	08:08	OC2	PMW16	W	0	14	@ 133' 4x40ml VOA clean
	09:40	OC2	PMW16	W	0	15	@ 142' 5x40ml VOA silty
	15:50	OC2	PMW16	W	0	16	@ 162' 3x40ml VOA silty
	15:50	OC2	PMW16	S	0	17	@ 161-161.5 13"x6" ss tube
6/3/05	0700	OC2	PMW16	W	4	18	Trip
	0715	OC2	PMW16	W	0	19	@ 172' 4x40ml VOA very silty

Field Duplicate - every 10th primary sample (or 10x.)
 Field Blank - @ first sample location then 10% of primary sample
 Equip Blank - once per sampling event
 Trip Blank - every cooler.

PACIFIC SURVEYS

ELECTRIC LOG LATEROLOG 3 GAMMA-RAY

Job No.
12053

Company WDC EXPLORATION & WELLS

Well MW-16

Field SANTA FE SPRINGS

County LOS ANGELES State CA

Location:

OMEGA CHEMICAL OU-2
ADJACENT TO 9028 DICE ROAD

Other Services:

LL3/GR
CALIPER

Sec.

Twp.

Rge.

Permanent Datum G.L.
Log Measured From G.L. 0' Elevation
Drilling Measured From G.L. above perm. datum

Elevation

K.B.
D.F.
G.L.

Date 06/03/05

Run Number ONE

Depth Driller 181'

Depth Logger 181'

Bottom Logged Interval 180'

Top Log Interval 10'

Casing Driller 9.5" @ 20'

Casing Logger 20'

Bit Size 8.5"

Type Fluid in Hole BENTONITE

Density / Viscosity N/A

pH / Fluid Loss N/A

Source of Sample PIT

Rm @ Meas. Temp 7.4 @ 77 F

Rmf @ Meas. Temp 8.4 @ 77 F

Rmc @ Meas. Temp N/A

Source of Rmf / Rmc MEAS

Rm @ BHT N/A

Time Circulation Stopped 09:00

Time Logger on Bottom 09:50

Max. Recorded Temperature N/A

Equipment Number PS-1

Location L.A.

Recorded By T. HOWARD

Witnessed By R. HALPERN

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Comments

ELOG Calibration Report

Serial:
Model:

D1
DTQ

Shop Calibration Performed:
 Before Survey Verification Performed:
 After Survey Verification Performed:

Sun Oct 03 15:58:27 2004
 Fri Mar 28 18:39:54 2003
 Tue Nov 20 13:45:24 2001

Shop Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	8.338	99.830		10.200	102.200	Ohm-m	1.006	1.815
Long	4.448	94.107		10.200	102.200	Ohm-m	1.026	-21.000
IEE	133.593	6285.944	counts	0.146	6.879	A		
VSN	89.009	7086.491	counts	1.698	135.166	V		
VLN	130.741	1836.815	counts	2.494	35.035	V		

Before Survey Verification

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	255.170	100.412		46.444	100.411	Ohm-m	-0.349	135.426
Long	1150.040	103.869		103.264	103.264	Ohm-m	0.219	80.559
IEE	140.620	6475.111	counts	0.154	7.086	A		
VSN	403.139	7304.796	counts	7.689	139.330	V		
VLN	454.231	1889.074	counts	8.664	36.032	V		

After Survey Verification

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	0.000	99.861		0.000	99.853	Ohm-m	1.000	0.000
Long	0.000	102.069		102.055	102.055	Ohm-m	1.000	0.000
IEE	129.370	6528.851	counts	0.142	7.145	A		
VSN	142.833	7325.000	counts	2.724	139.715	V		
VLN	114.778	1871.738	counts	2.189	35.701	V		

After Survey Verification compared to Before Survey Calibration

	Zero			Cal		
	Before	After		Before	After	
Short	46.444	0.000	Ohm-m	100.411	99.853	Ohm-m
Long	331.945	0.000	Ohm-m	103.264	102.055	Ohm-m

Gamma Ray Calibration Report

Serial Number: D1
 Tool Model: ELOG
 Performed: Mon Jan 26 16:20:05 2004

Calibrator Value: 162 GAPI

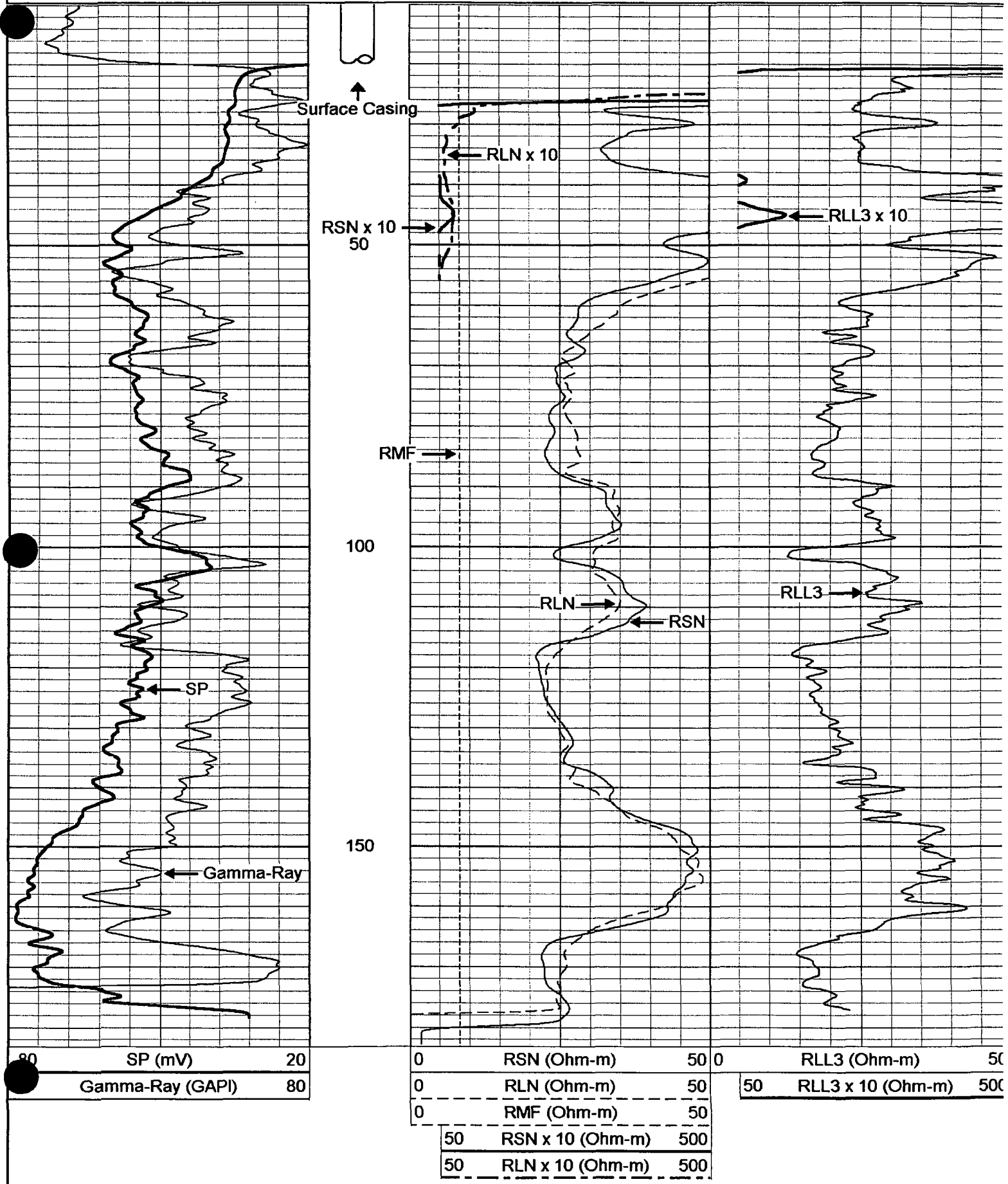
Background Reading: 172.547 cps
 Calibrator Reading: 717.938 cps

Sensitivity: 0.297034 GAPI/cps

Database File: 12053.db
 Dataset Pathname: ELOG_UP
 Presentation Format: ELOG
 Dataset Creation: Fri Jun 03 10:00:27 2005 by Log Warrior Version 6.6
 Charted by: Depth in Feet scaled 1:240

-80	SP (mV)	20	0	RSN (Ohm-m)	50	0	RLL3 (Ohm-m)	50
30	Gamma-Ray (GAPI)	80	0	RLN (Ohm-m)	50	50	RLL3 x 10 (Ohm-m)	500

0	RMF (Ohm-m)	50
50	RSN x 10 (Ohm-m)	500
50	RLN x 10 (Ohm-m)	500



PACIFIC SURVEYS

LATEROLOG 3 GAMMA-RAY

Job No.
12053

Company WDC EXPLORATION & WELLS

Well MW-16

Field SANTA FE SPRINGS

County LOS ANGELES State CA

Location:

OMEGA CHEMICAL OU-2
ADJACENT TO 9028 DICE ROAD

Other Services:

ELOG/GR
CALIPER

Sec.	Twp.	Rge.	Elevation above perm. datum	Elevation K.B. D.F. G.L.
Permanent Datum	G.L.			
Log Measured From	G.L.	0'		
Drilling Measured From	G.L.			

Date	06/03/05		
Run Number	ONE		
Depth Driller	181'		
Depth Logger	181'		
Bottom Logged Interval	180'		
Top Log Interval	10'		
Casing Driller	9.5" @ 20'		
Casing Logger	20'		
Bit Size	8.5"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	7.4 @ 77 F		
Rmf @ Meas. Temp	8.4 @ 77 F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEAS		
Rm @ BHT	N/A		
Time Circulation Stopped	09:00		
Time Logger on Bottom	09:50		
Max. Recorded Temperature	N/A		
Equipment Number	PS-1		
Location	L.A.		
Recorded By	T. HOWARD		
Witnessed By	R. HALPERN		

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Comments

Gamma Ray Calibration Report

Serial Number:
Tool Model:
Performed:

13
GROH
Mon Jan 26 16:29:15 2004

Calibrator Value:	162	GAPI
Background Reading:	35.1944	
Calibrator Reading:	162.483	
Sensitivity:	1.2727	GAPI/

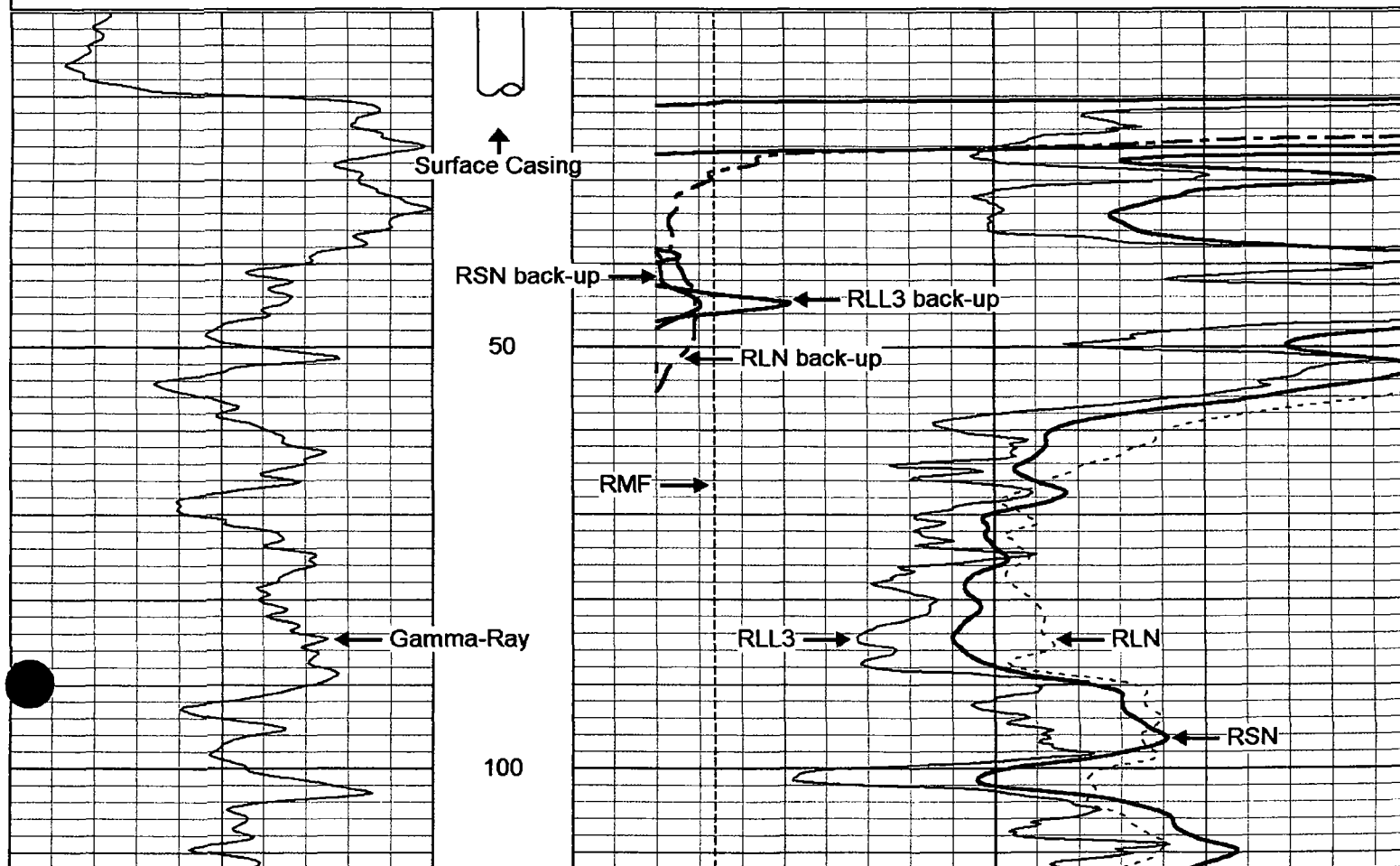
Simplec Long Guard Calibration Report

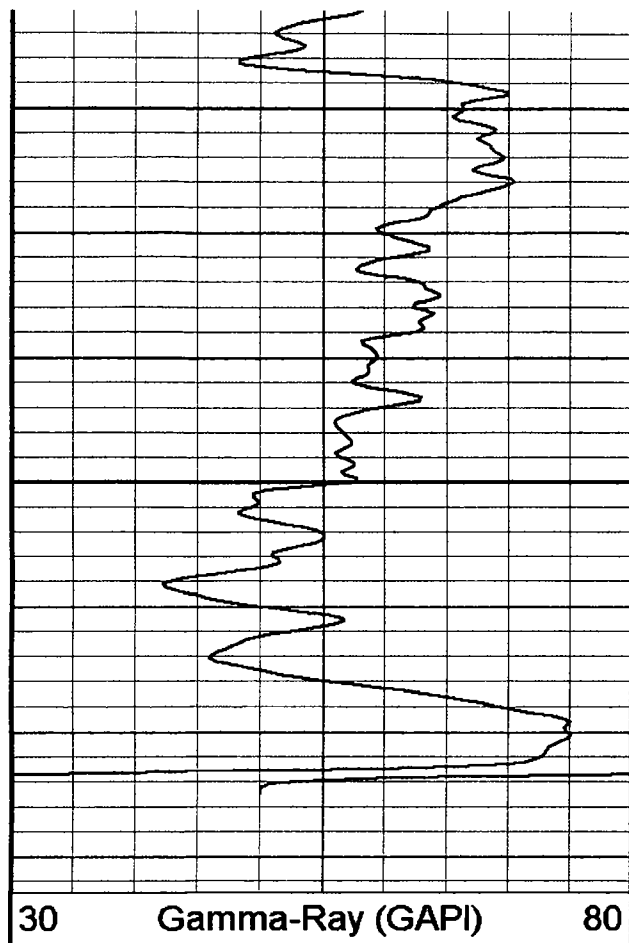
Serial Number:	231
Tool Model:	M&W
Performed:	Tue Feb 08 11:47:13 2005

System Reading	Calibration Reference
0.079	2.500 Ohm-m
0.158	5.000
1.620	50.000
7.860	250.000
15.699	500.000

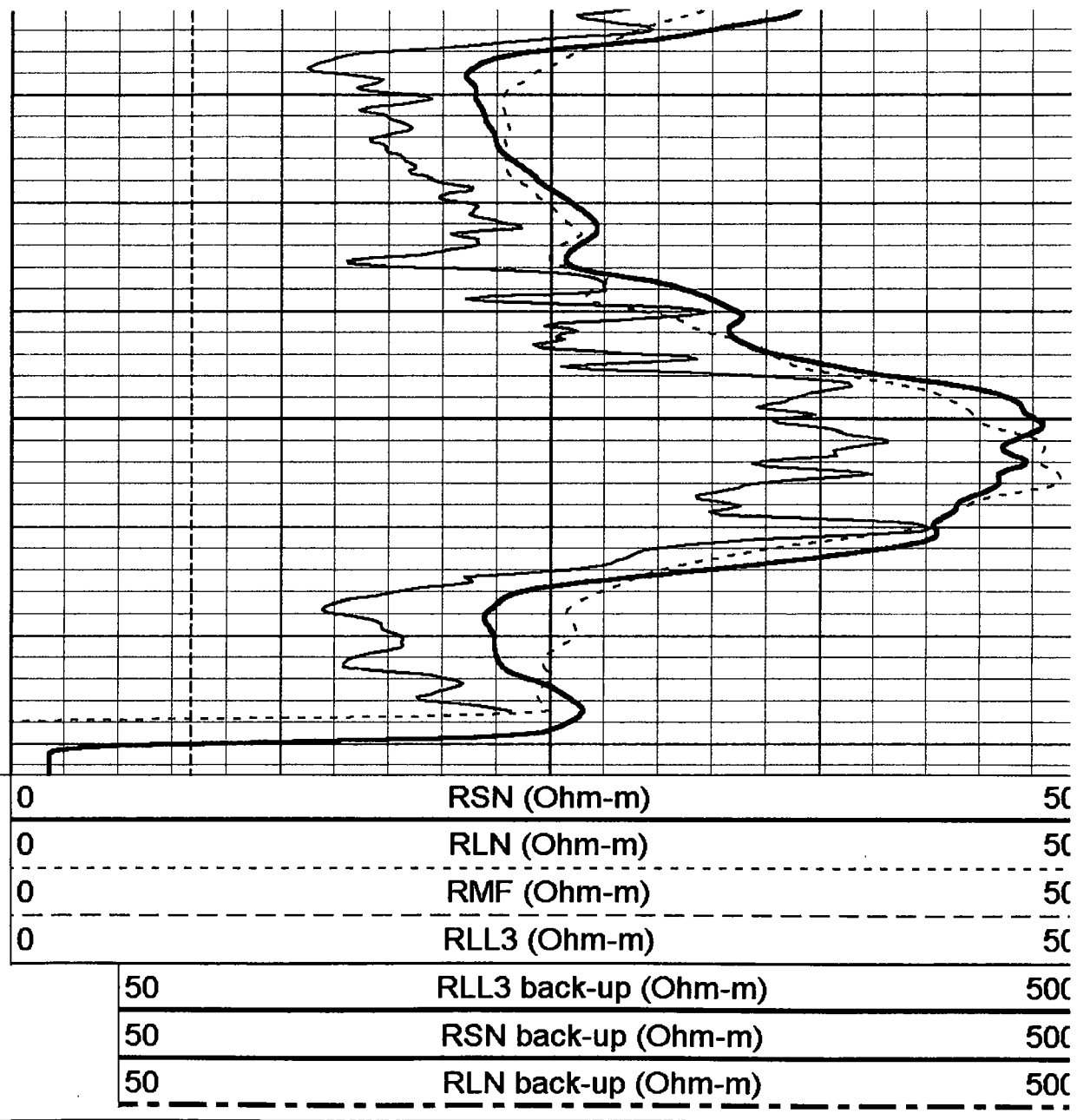
Database File: 12053.db
 Dataset Pathname: LL3
 Presentation Format: GUARD
 Dataset Creation: Fri Jun 03 10:32:23 2005 by Log Warrior Version 6.6
 Charted by: Depth in Feet scaled 1:240

30	Gamma-Ray (GAPI)	80	0	RSN (Ohm-m)	50
			0	RLN (Ohm-m)	50
			0	RMF (Ohm-m)	50
			0	RLL3 (Ohm-m)	50
			50	RLL3 back-up (Ohm-m)	50
			50	RSN back-up (Ohm-m)	50
			50	RLN back-up (Ohm-m)	50





150



PACIFIC SURVEYS

CALIPER BOREHOLE VOLUMES

Job No.
12053

Company WDC EXPLORATION & WELLS

Well MW-16

Field SANTA FE SPRINGS

County LOS ANGELES State CA

Location:

OMEGA CHEMICAL OU-2
ADJACENT TO 9028 DICE ROAD

Other Services:

LL3/GR
ELOG/GR

Sec. Twp. Rge.

Permanent Datum	G.L.	Elevation	Elevation
Log Measured From	G.L.	0' above perm. datum	K.B.
Drilling Measured From	G.L.		D.F.
			G.L.

Date	06/03/05		
Run Number	ONE		
Depth Driller	181'		
Depth Logger	181'		
Bottom Logged Interval	180'		
Top Log Interval	10'		
Type Caliper	3-ARM		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	34		
Max. Recorded Temp.	N/A		
pH/Fluid Loss	N/A		
Time Well Ready	09:45		
Time Logger on Bottom	09:50		
Equipment Number	PS-1		
Location	L.A.		
Recorded By	T. HOWARD		
Witnessed By	R. HALPERN		

Borehole Record

Gravel Feed/Tubing Schedule

Run Number	Bit	From	To	Size	Type	From	To
ONE	8.5"	0'	181'				

Casing Schd.	Size	Wgt/Ft	Top	Bottom
Surface String				
Production String	2.5" OD	SCH 80 PVC	0'	65'
Production String	2.5" OD	SCH 80 PVC	0'	121'
Production String	2.5" OD	SCH 80 PVC	0'	169'
Production String				

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Comments

XY Caliper Calibration Report

Serial Number:
Tool Model:
Performed:

Medium
Comprobe
Fri Oct 15 17:58:55 2004

<<< Fold Here >>>

Small Ring:
Large Ring:

10
24

in
in

X Caliper

Y Caliper

Reading with Small Ring:
Reading with Large Ring:

339.048
681.905

339.048
681.905

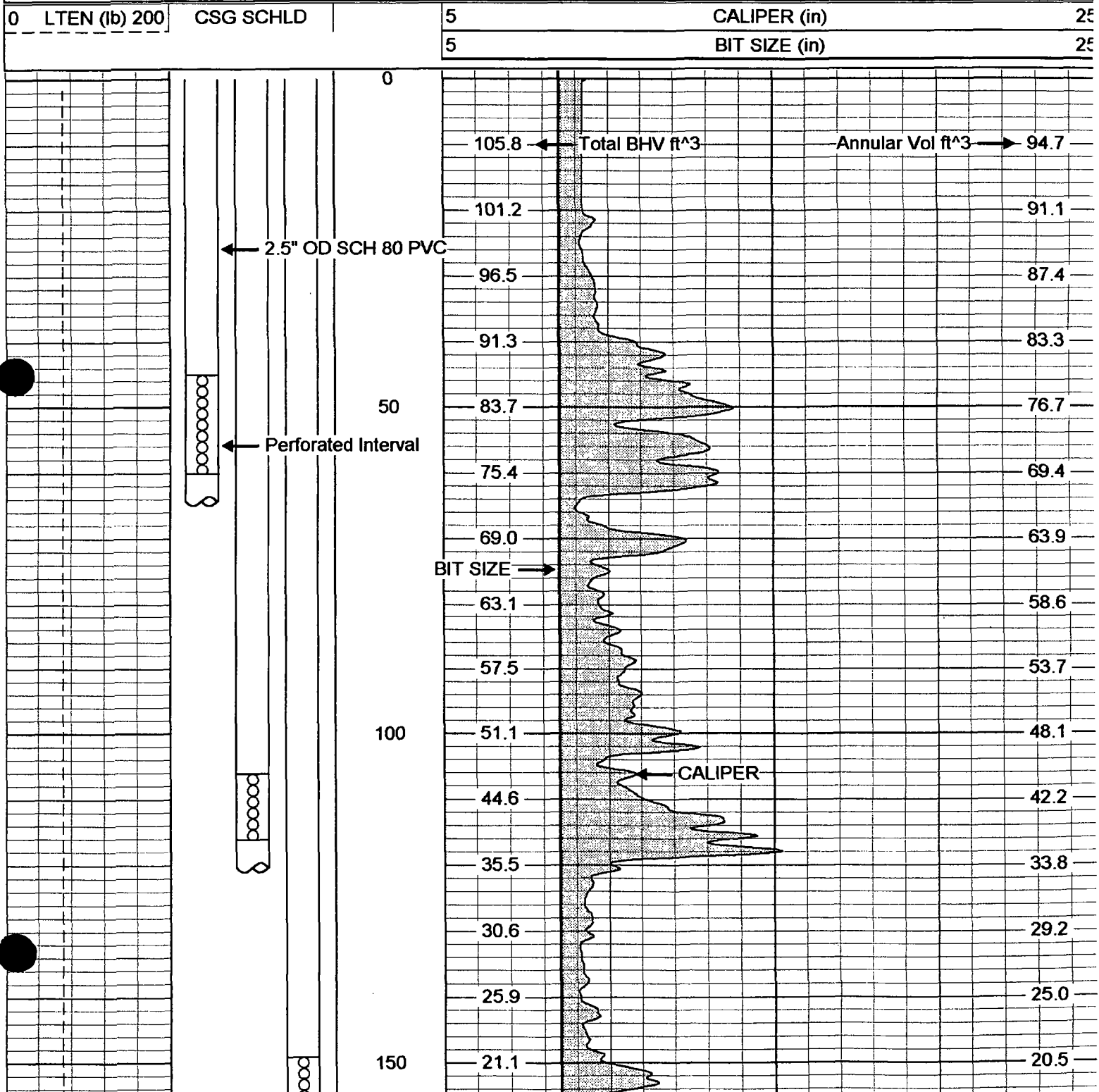
cps
cps

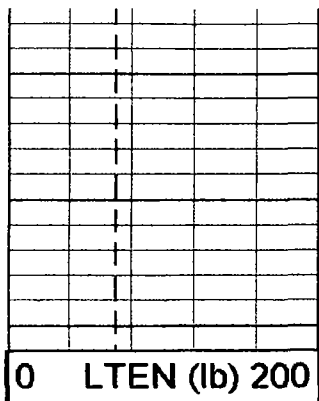
Gain:
Offset:

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-2.64446

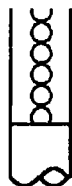
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-2.64446

Database File: 12053.db
Dataset Pathname: CAL.1
Presentation Format: XYC2
Dataset Creation: Fri Jun 03 11:41:03 2005 by Calc Warrior Version 6.6
Charted by: Depth in Feet scaled 1:240

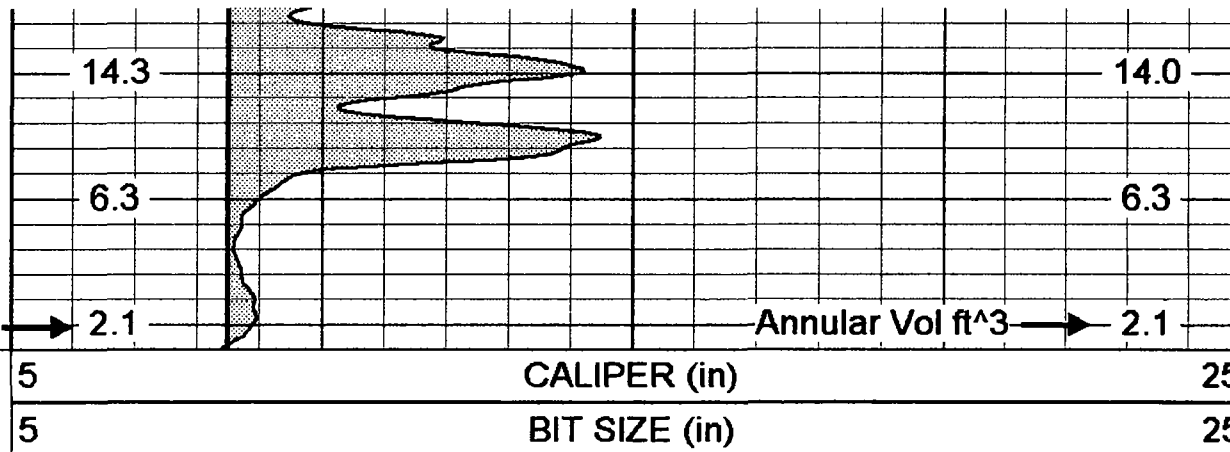




CSG SCHLD



Total BHV ft³





SUBJECT:

JOB NO:

BY:

DATE:

CHKD:

DATE:

PAGE

SHEET

Well Design Details1. Deep well - MW16C

Screen : 149 - 164'

5' length : 164 - 164 - 169'

216 Sand : 180 - 147'

Bentrite chips (BC) : 147 - 145'

1:1 mix : 147 - 121'

2. Intermediate well : MW16B

Screen : 106 - 116'

Blank feet : 116 - 121'

#3 Sand : 121 - 104'

BC : 104 - 102'

1:1 mix : 102 - 65'

3. Shallow well : MW16A

Screen : 45 - 60'

Blank feet : 60 - 65'

216 Sand : 65 - 43'

B.C : 43 - 40

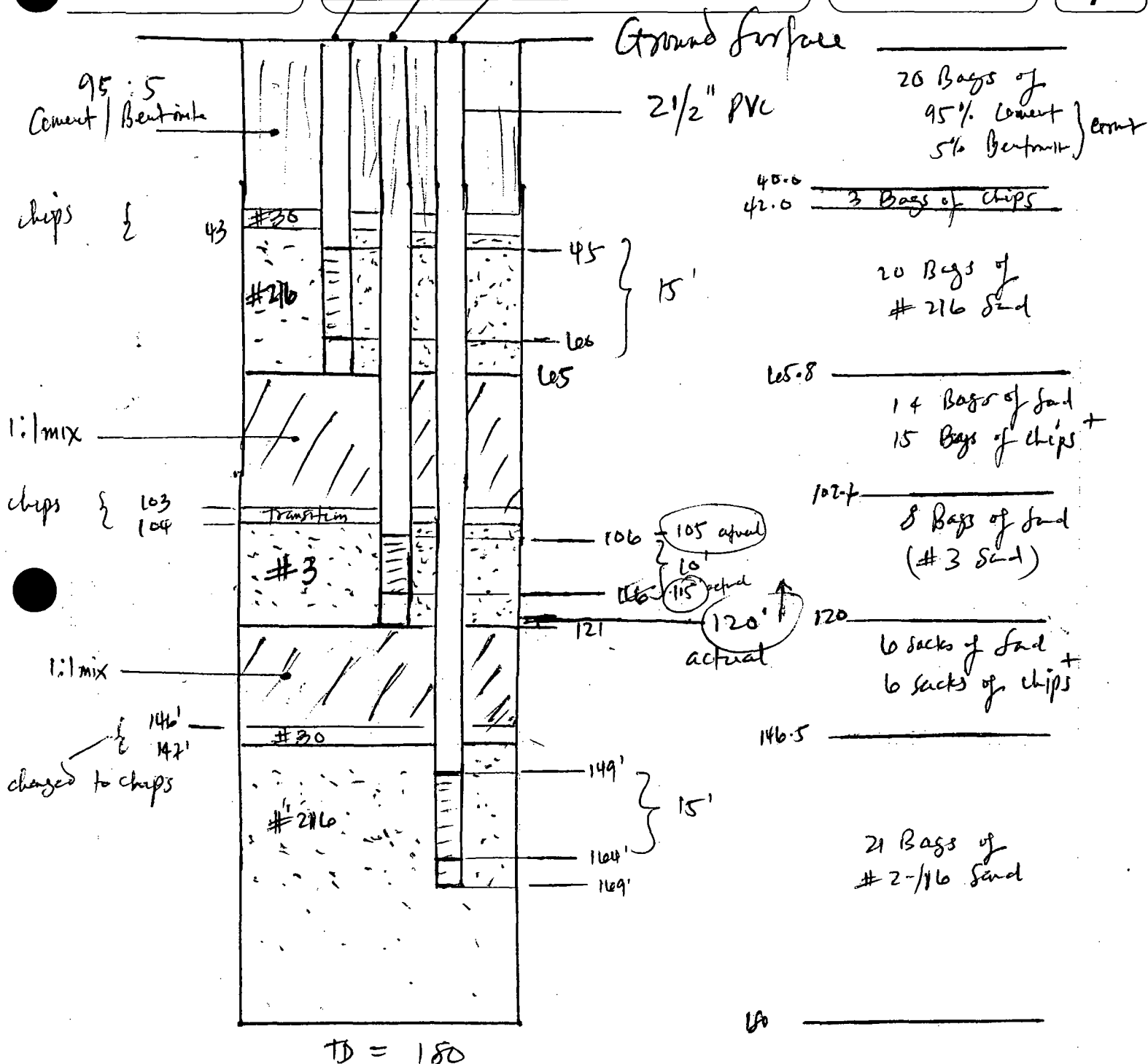
{ 95% Cement
5% Bent mix : 40' - SURFACE



SUBJECT: MW 16
 (8' deep)
 MW 16 B (INT)
 MW 16 C (DEEP)
 JOB NO:

BY: DATE:
 CHKD: DATE:

PAGE
 SHEET /



bag 1

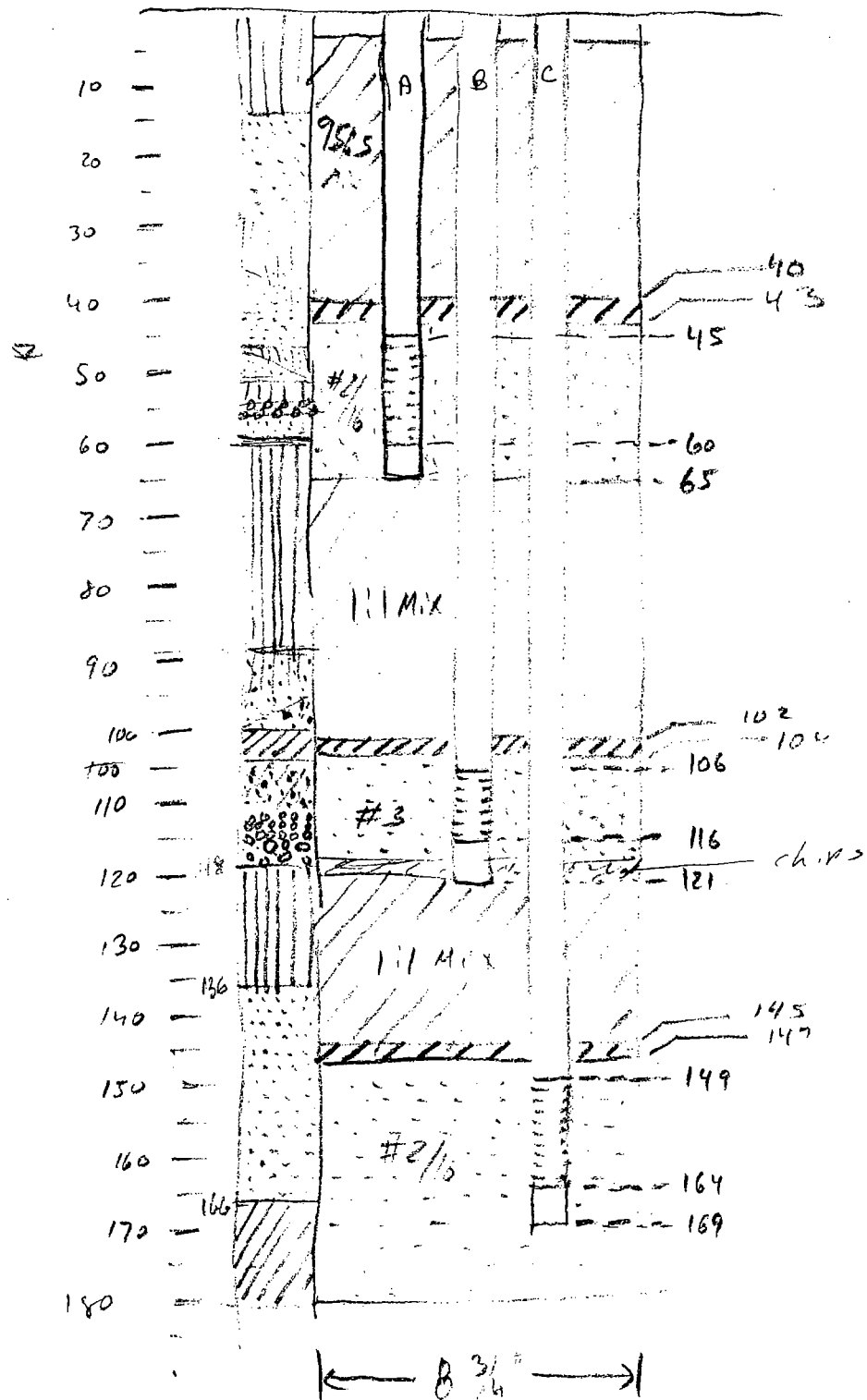
Blank 45 + 110 + 150 = 305 + 15 = 320 ft

Screen 15 + 10 + 15 = 40 ft

End caps 3

Locking caps 3

well construction PMW 16



LOG OF BORING MW17

(Page 1 of 8)

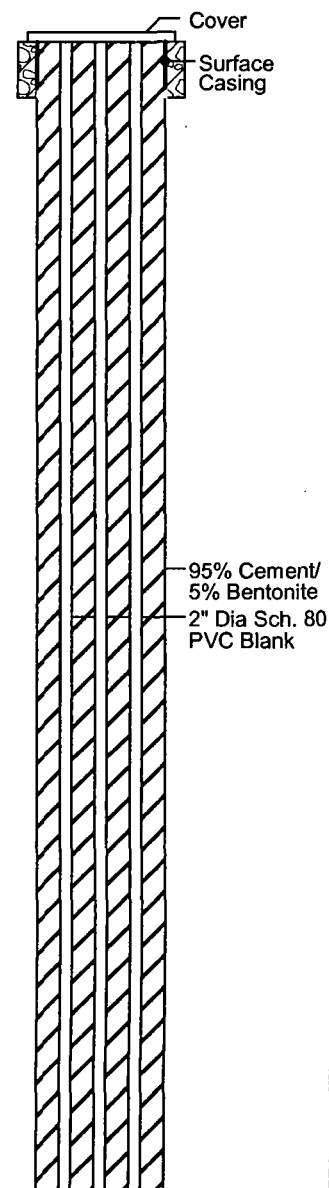
Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : June 28, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : GF Star30 Mud Rotary

OVA : MiniRae
Driller : Steve, Joe, Daniel
Drilling Method : Simulprobe/Split Spoon
Diameter : 8 3/4
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
0									Unpaved soil
5							CL		(Off cyclone): SILTY CLAY, stiff, brown (10YR 4/3), slightly moist, no odor.
10									(Off cyclone): SILTY CLAY, stiff, dark yellowish brown (10YR 4/6), dry to slightly moist, ~3-5% fine sand.
15							SP-ML		(Off cyclone): Poorly graded SAND/SILT, very fine-grained sand, light yellowish brown (2.5Y 6/4), dry to slightly moist.
20							SP		(Off mud return): Poorly graded SAND, predominantly fine to medium grained, ~5-10% coarse (3-4 mm dia.)
25									

Well1: MW17A
Well2: MW17B
Well3: MW17C
Elev.: 159.42



Boring location on southwest sidewalk of Pike Street opposite 12005 Pike Street (behind McMaster Carr).
Elevation noted is ground surface.

A = Shallow; B = Intermediate; C = Deep

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : June 28, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : GF Star30 Mud Rotary

OVA : MiniRae
Driller : Steve, Joe, Daniel
Drilling Method : Simulprobe/Split Spoon
Diameter : 8 3/4
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
25							SP			Well1: MW17A Well2: MW17B Well3: MW17C Elev.: 159.42
30	X			10:43			CL		(30-31' Split Spoon): CLAY, hard, strong brown (7.5YR 4/6), moist, mottled with light gray and reddish brown, ~3-5% fine sand.	
35									(36' Off shaker): Poorly graded SAND, ~80-90% fine to medium Sand, ~10-20% medium to coarse Sand.	
40	X			12:00	0.7	100%	SP		At 11:45 set Simulprobe 4-41.5'. No water at 12:00 (40-41.5' off Simulprobe): Poorly graded SAND, predominantly (90-95%) fine to medium sand (up to 1 mm dia.), 5-10% low-end coarse sand (2-2.5 mm di.), yellowish brown (10 YR 5/4) to dark yellowish brown (10YR 4/4), wet.	95% Cement/ 5% Bentonite 2" Dia Sch. 80 PVC Blank
45									(Based on E-logs)	
50							ML			

Boring location on southwest sidewalk of Pike Street opposite 12005 Pike Street (behind McMaster Carr).
Elevation noted is ground surface.

A = Shallow; B = Intermediate; C = Deep



ARCADIS
Infrastructure, environment, facilities

LOG OF BORING MW17

(Page 3 of 8)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : June 28, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : GF Star30 Mud Rotary

OVA : MiniRae
Driller : Steve, Joe, Daniel
Drilling Method : Simulprobe/Split Spoon
Diameter : 8 3/4
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
50	X		OC2PMW17 W-0-04	13:50	1.1	100%			(50-51.5' off Simulprobe): SILT with CLAY, soft to firm (~1/4" penetration), yellowish-brown (10YR 5/6), wet (not saturated), rapid dilatency, low toughness, low plasticity, occasional black (organic?) artifacts, occasional evidence of horizontal layering, sticky.	95% Cement/ 5% Bentonite
55							ML			Bentonite Chips
60	X		No Water Recovery		0.4	100%			(60-60.5' from Simulprobe): Same as above. (60.5-61.5' from Simulprobe): Poorly graded SAND, fine-grained (max 1/2 mm dia.), light olive brown (2.5Y 5/3), moist, no odor.	2" Dia Sch. 80 PVC Blank
65	X		Dry Canister	6/22/05		100%	SP		(65-66.5' from Simulprobe): Poorly graded SAND, ~75-80% fine to medium grained sand (up to 2 mm dia.), ~20-25% coarse (max 5 mm dia.), occasional fine gravel, light olive brown (2.5Y 5/3), wet.	2" Dia Sch. 80 PVC Blank 2" Dia Sch. 80 PVC (0.020" Slotted Screen Sand #2/16
70										
75							ML		(Based on E-logs)	2" Dia Sch. 80 PVC w/Threaded End Cap

Boring location on southwest sidewalk of Pike Street opposite 12005 Pike Street (behind McMaster Carr).
Elevation noted is ground surface.

A = Shallow; B = Intermediate; C = Deep

LOG OF BORING MW17

(Page 4 of 8)

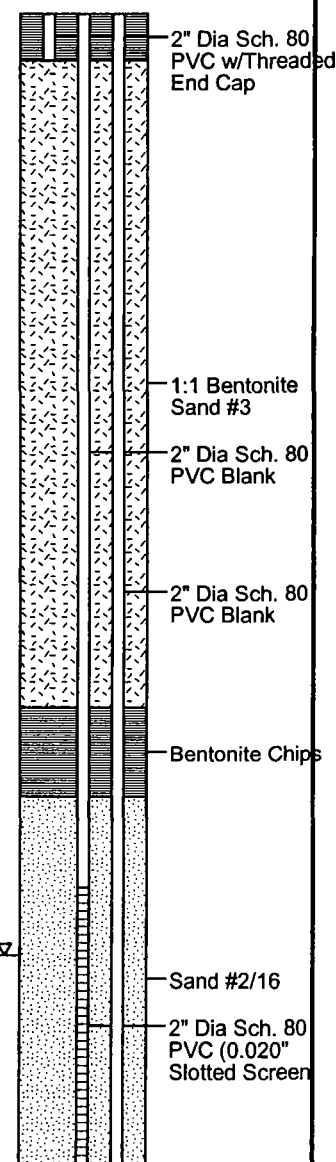
Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : June 28, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : GF Star30 Mud Rotary

OVA : MiniRae
Driller : Steve, Joe, Daniel
Drilling Method : Simulprobe/Split Spoon
Diameter : 8 3/4
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
75	X		No Water Recovery	8:30 9:30			ML		(75-77' off Simulprobe): SILT, firm (~1/4" penetration), brown (7.5YR 5/4), mottled with light gray and reddish brown, wet (but not saturated), low plasticity, low toughness, slow dilatency, low liquid limit. (77-80' off mud return): SANDY SILT, ~15% fine to medium Sand, saturated (max 2 mm dia.) in brown clayey Silt matrix.
80									(Based on E-logs)
85	X		No Water Recovery	10:30 11:30			CL		(85-87' off Simulprobe): SILTY CLAY, hard, reddish brown (5YR 4/4), slightly moist, ~10-20% fine-grained size (15-20 mm dia.) modules of clay, sub-spherical and subrounded.
90									
95	X		OC2PMW17 W-0-06 OC2PMW17 W-1-07	12:30 14:00			SP		(95-97' Split Spoon): Poorly graded SAND, ~3-5% reddish brown clay, ~95-97% fine to medium Sand (<=1 mm dia.), strong brown (7.5YR 4/4), to olive brown (2.5Y 4/3), saturated.
100									

Well1: MW17A
Well2: MW17B
Well3: MW17C
Elev.: 159.42



Boring location on southwest sidewalk of Pike Street opposite 12005 Pike Street (behind McMaster Carr).
Elevation noted is ground surface.

A = Shallow; B = Intermediate; C = Deep



ARCADIS
Infrastructure, environment, facilities

LOG OF BORING MW17

(Page 5 of 8)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : June 28, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : GF Star30 Mud Rotary

OVA : MiniRae
Driller : Steve, Joe, Daniel
Drilling Method : Simulprobe/Split Spoon
Diameter : 8 3/4
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
100							SP		(102' off shaker): Poorly graded SAND: ~70-80% fine to medium grained, ~20-30% medium to coarse (max 5 mm).	Well1: MW17A Well2: MW17B Well3: MW17C Elev.: 159.42
105	X		No Water Recovery	14:40 15:50			ML		(105-107' off Simulprobe): CLAYEY SILT, firm (<1/4" penetration), light olive brown (2.5Y 4/3), moist, rapid dilatency, moderate toughness, low plasticity, positive ribbon test, trace very fine sand.	2" Dia Sch. 80 PVC (0.020" Slotted Screen Sand #2/16
110							ML		Off mud return at 110' - same as above.	2" Dia Sch. 80 PVC w/Threaded End Cap Bentonite Chips
115	X		OC2PMW17 W-0-08	6/22/05 6/23/05 7:50			SW-SC		(115-117' off Simulprobe): SILT, medium stiff (1/4-3/8" penetration), light olive brown (2.5Y 5/3) to olive brown (2.5Y 4/3), wet (but not saturated), low plasticity. At 117' driller indicates change soil type.	2" Dia Sch. 80 PVC Blank
120							SW-SC		(117' off shaker): Well graded SAND with Silt and Gravel, ~5-10% Silt, ~5% Clay, ~60-70% fine to coarse Sand (max dia. 5 mm), and ~30% fine gravel, yellowish brown, sand and gravel subangular to subrounded and sub-spherical.	1:1 Bentonite Sand #3
125							SP			

Boring location on southwest sidewalk of Pike Street opposite 12005 Pike Street (behind McMaster Carr).
Elevation noted is ground surface.

A = Shallow; B = Intermediate; C = Deep

LOG OF BORING MW17

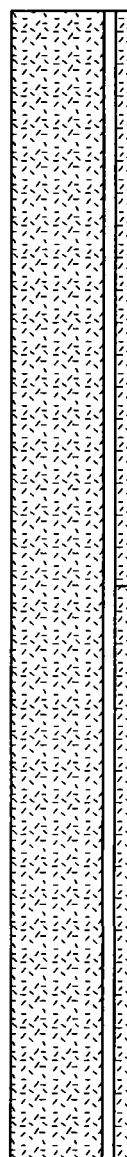
(Page 6 of 8)

 Omega Chemical Operable Unit 2
 Project No. CA000646.0001

 Date Completed : June 28, 2005
 Logged By : Ronald Halpern, PG
 Checked By : Ronald Halpern, PG
 Drilling Company : WDC
 Drill Rig : GF Star30 Mud Rotary

 OVA : MiniRae
 Driller : Steve, Joe, Daniel
 Drilling Method : Simulprobe/Split Spoon
 Diameter : 8 3/4
 Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
125	X		No Water Recovery	9:00			SP		(125-127' off Simulprobe): Poorly graded SAND with SILT, ~3-5% Silt, 95-97% very fine Sand, olive (5Y 4/4), wet, does not roll, rapid dilatency, no dry strength.	
130							CL		(From 130' based on E-log) (~132' off mud return): SILTY CLAY, olive brown (2.5Y 4/3), moderate toughness, moderate plasticity.	
135	X		No Water Recovery			50%			(135-137' off Split Spoon): SILT with CLAY, ~5% Clay, hard, olive (5Y 5/3), moist, low to medium toughness, moderate dilatency, moderate plasticity.	
140							ML		Off mud return - same as above. Change in color - off mud return.	
145	X		OC2PMW17 W-0-09	14:33					(145-147' off Simulprobe): SILT with CLAY, firm (~1/4" penetration), dark greenish gray (Gley 1 4/1), wet, low to moderate toughness, low plasticity, moderate dilatency.	
150										


 1:1 Bentonite
 Sand #3
 2" Dia Sch. 80
 PVC Blank

 Boring location on southwest sidewalk of Pike Street opposite 12005 Pike Street (behind McMaster Carr).
 Elevation noted is ground surface.

A = Shallow; B = Intermediate; C = Deep

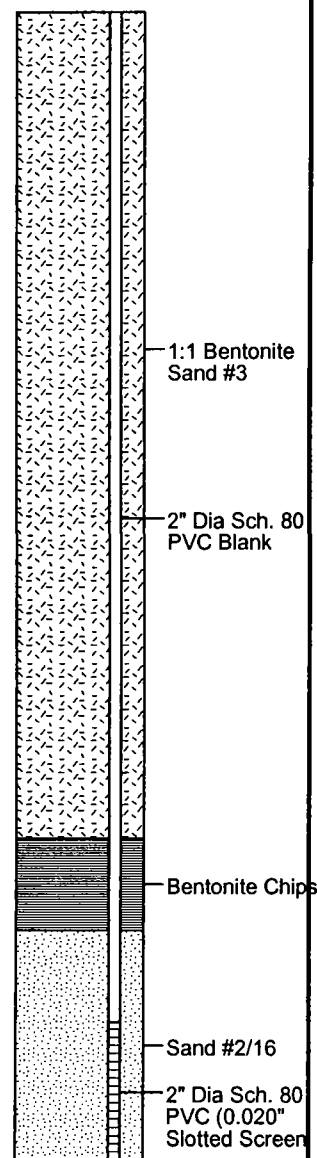
Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : June 28, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : GF Star30 Mud Rotary

OVA : MiniRae
Driller : Steve, Joe, Daniel
Drilling Method : Simulprobe/Split Spoon
Diameter : 8 3/4
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
150							ML		
155	X						CL		(153-157' Split Spoon): SILTY CLAY, hard (fingernail penetration), dark greenish gray (Gley 1 3/1), with caliche (effervescent/HCl), dry to slightly moist.
160									
165	X					40%	ML		Change in drilling according to driller. (165-166' Split Spoon): Sandy non-plastic SILT, hard, pale-olive (5Y 6/3) with yellowish brown (10YR 5/8) oxidation stains, moist.
170	X			6/24/05 8:52			SP		(170-171' Split Spoon): Poorly graded SAND-fine grained (0.1-0.2 mm dia.), light olive gray (5Y 6/2), wet, subangular to subrounded sand grains, ~70-80% quartz, ~15% mafic, 5-15% other.
175									

Well1: MW17A
Well2: MW17B
Well3: MW17C
Elev.: 159.42



Boring location on southwest sidewalk of Pike Street opposite 12005 Pike Street (behind McMaster Carr).
Elevation noted is ground surface.

A = Shallow; B = Intermediate; C = Deep

LOG OF BORING MW17

(Page 8 of 8)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed	: June 28, 2005	OVA	: MiniRae
Logged By	: Ronald Halpern, PG	Driller	: Steve, Joe, Daniel
Checked By	: Ronald Halpern, PG	Drilling Method	: Simulprobe/Split Spoon
Drilling Company	: WDC	Diameter	: 8 3/4
Drill Rig	: GF Star30 Mud Rotary	Calibration Gas/Conc	: 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
175									Change in color at ~175 ft to brownish yellow (10YR 6/6), with reddish brown oxidation planes.	
180	X		OC2PMW17 W-0-13	13:55			SP		Driller indicates "GRAVEL" at 180'. (180' off mud return): Poorly graded SAND, ~80-90% fine to medium grained (max 2 mm dia.), ~5% coarse Sand, ~5% fine Gravel (max 14 mm dia.). (180-182' off Simulprobe): Poorly graded SAND with SILT, ~5-10% Silt, 90-95% fine to medium Sand (max 1 mm dia.), light olive brown (2.5Y 5/6), with yellowish brown (10YR 5/6), oxidation planes, wet, no odor.	
185							SP-SM			
190	X		OC2PMW17 W-0-15	6/27/05 10:55			SP		(190' off mud return): Poorly graded/well graded SAND, ~90% fine to medium-grained Sand (max 2 mm dia.) ~5-10% coarse Sand (max 5 mm dia.), <3% fine Gravel.	
195							ML-CL		(190-191.5' off Simulprobe): Poorly graded SAND with SILT, ~10% Silt, ~3-5% coarse Sand, 85-90% fine to medium Sand (max 2 mm dia.), oxidation planes, wet, no odor. (191.5-192' off Simulprobe): CLAYEY SILT/SILTY CLAY, moist, (2.5Y 5/6) with yellowish brown oxidation planes (10YR 5/6), no odor, moderate toughness, moderate to high plasticity, low dilatency.	
200									Bottom of boring at 192 ft.	

Boring location on southwest sidewalk of Pike Street opposite 12005 Pike Street (behind McMaster Carr).
Elevation noted is ground surface.

A = Shallow; B = Intermediate; C = Deep

rw 17

4 VOAS
4 JARS
50/12 1311

PACIFIC SURVEYS

ELECTRIC LOG LATEROLOG 3 GAMMA RAY

Job No.
12091

Company WDC EXPLORATION & WELLS

Well MW-17

File No.

Field SANTA FE SPRINGS

County LOS ANGELES State CA

Location:

PIKE ST.;
EAST OF PACIFIC

Other Services:

GR/LL3
CALIPER

Sec. Twp. Rge.

Permanent Datum	G.L.	Elevation	Elevation
Log Measured From	G.L.	0'	above perm. datum
Drilling Measured From	G.L.		

K.B.
D.F.
G.L.

Date	6-24-05		
Run Number	ONE		
Depth Driller	194'		
Depth Logger	194'		
Bottom Logged Interval	193'		
Top Log Interval	10'		
Casing Driller	9.5" @ 18'		
Casing Logger	18'		
Bit Size	9"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	7.8 @ 77F		
Rmf @ Meas. Temp	8.3 @ 77F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEAS		
Rm @ BHT	N/A		
Time Circulation Stopped	2:15 PM		
Time Logger on Bottom	2:40 PM		
Max. Recorded Temperature	N/A		
Equipment Number	PS-2		
Location	L.A.		
Recorded By	LAPORTE		
Witnessed By	R. HALPERN		

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Comments

ELOG Calibration Report

Serial:
Model:

D1
DTQ

Shop Calibration Performed:
Before Survey Verification Performed:
After Survey Verification Performed:

Fri Apr 29 12:26:04 2005
Mon Jun 06 11:08:02 2005
Fri Apr 29 12:32:46 2005

Shop Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	8.241	99.640		10.200	102.200	Ohm-m	1.007	1.904
Long	7.417	96.821		10.200	102.200	Ohm-m	1.029	-17.567
IEE	112.580	4730.241	counts	0.123	5.177	A		
VSN	9.477	5293.988	counts	0.181	100.976	V		
VLN	214.205	1417.736	counts	4.086	27.042	V		

Before Survey Verification

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	9.282	99.534		7.493	99.615	Ohm-m	1.021	-1.982
Long	457.514	107.030		106.708	106.708	Ohm-m	1.628	-67.572
IEE	107.875	4570.704	counts	0.118	5.002	A		
VSN	11.250	5111.269	counts	0.215	97.491	V		
VLN	138.625	1374.056	counts	2.644	26.208	V		

After Survey Verification

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	7.701	99.621		7.548	98.604	Ohm-m	0.991	-0.081
Long	677.668	106.711		106.590	106.590	Ohm-m	0.993	0.656
IEE	113.117	4756.250	counts	0.124	5.205	A		
VSN	9.787	5323.424	counts	0.187	101.538	V		
VLN	215.309	1425.576	counts	4.107	27.191	V		

After Survey Verification compared to Before Survey Calibration

	Zero			Cal		
	Before	After		Before	After	
Short	7.493	7.548	Ohm-m	99.615	98.604	Ohm-m
Long	677.412	673.391	Ohm-m	106.708	106.590	Ohm-m

Gamma Ray Calibration Report

Serial Number:
Tool Model:
Performed:

D1
ELOG
Fri Apr 29 12:39:01 2005

Calibrator Value:

162 GAPI

Background Reading:
Calibrator Reading:

167.616 cps
722.887 cps

Sensitivity:

0.291746 GAPI/cps

PACIFIC SURVEYS

LATEROLOG 3 GAMMA RAY

Job No.
12091

Company WDC EXPLORATION & WELLS

Well MW-17

File No.

Field SANTA FE SPRINGS

County LOS ANGELES State CA

Location:

PIKE ST.,
EAST OF PACIFIC

Other Services:

E-LOG
CALIPER

Sec.	Twp.	Rge.	Elevation above perm. datum	Elevation
Permanent Datum	G.L.			
Log Measured From	G.L.	0'		
Drilling Measured From	G.L.			

Date	6-24-05		
Run Number	ONE		
Depth Driller	194'		
Depth Logger	194'		
Bottom Logged Interval	193'		
Top Log Interval	10'		
Casing Driller	9.5" @ 18'		
Casing Logger	18'		
Bit Size	9"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	7.6 @ 77F		
Rmf @ Meas. Temp	8.3 @ 77F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEAS		
Rm @ BHT	N/A		
Time Circulation Stopped	2:15 PM		
Time Logger on Bottom	2:40 PM		
Max. Recorded Temperature	N/A		
Equipment Number	PS-2		
Location	LA		
Recorded By	LAPORTE		
Witnessed By	R. HALPERN		

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Comments

Gamma Ray Calibration Report

Serial Number: 13
Tool Model: GROH
Performed: Fri Apr 29 12:58:38 2005

Calibrator Value: 192
Background Reading: 31.1611
Calibrator Reading: 205.072

Sensitivity: 0.931511
GAPI/

Simplex Long Guard Calibration Report

Serial Number: 81
Tool Model: M&W
Performed: Fri Apr 29 12:57:36 2005

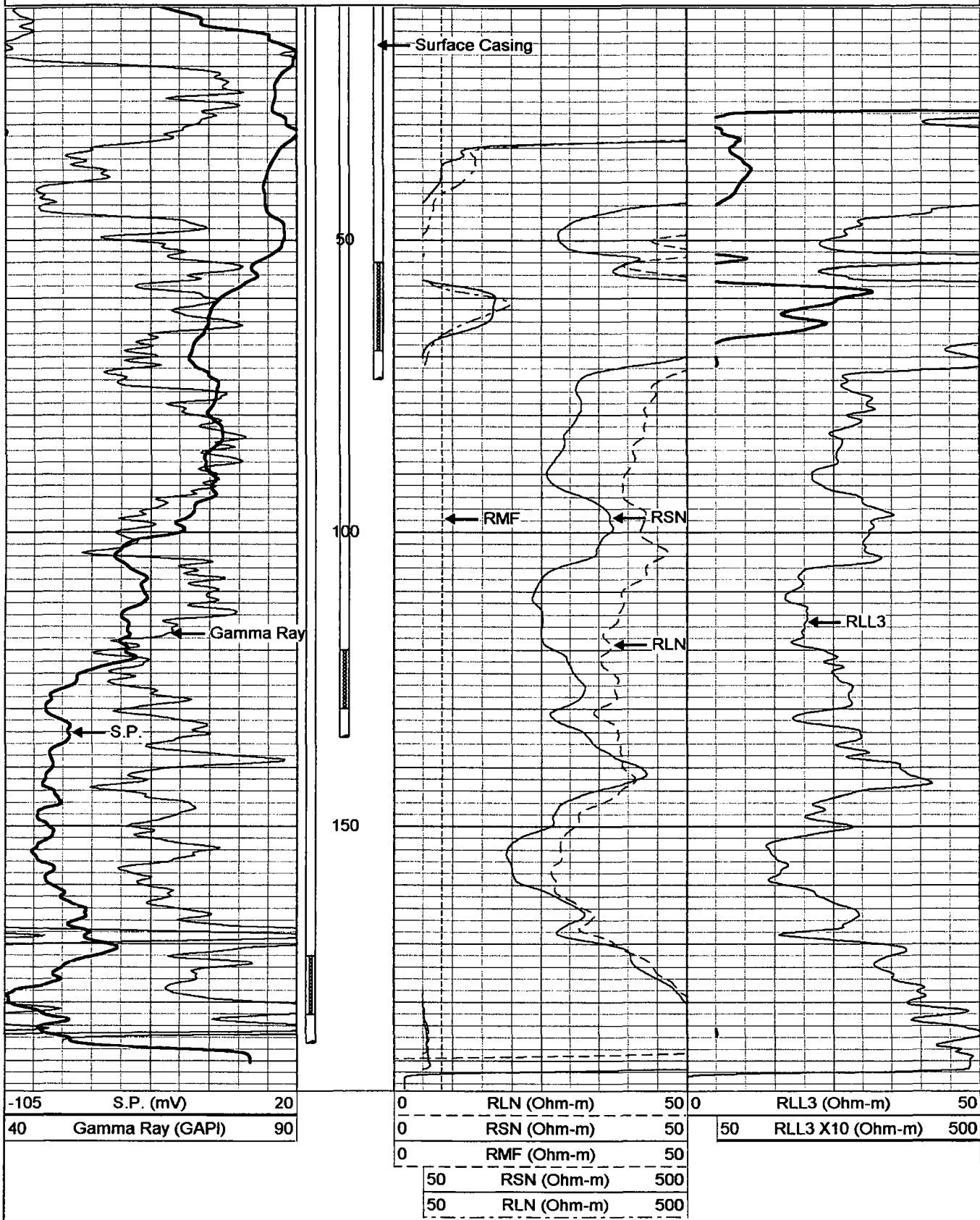
System Reading	Calibration Reference	Ohm-m
0.310	2.500	
0.628	5.000	
6.054	50.000	
28.969	250.000	
56.732	500.000	

Database File: 12091.db
 Dataset Pathname: WDC/MIN17/run1/Elog
 Presentation Format: ELOG2
 Dataset Creation: Fri Jun 24 14:33:57 2005 by Log 6.0
 Charted by: Depth in Feet scaled 1:240

-105	S.P. (mV)	20
40	Gamma Ray (GAPI)	90

0	RLN (Ohm-m)	50
0	RSN (Ohm-m)	50
0	RMF (Ohm-m)	50
50	RSN (Ohm-m)	500
50	RLN (Ohm-m)	500

0	RLL3 (Ohm-m)	50
50	RLL3 X10 (Ohm-m)	500



-105	S.P. (mV)	20
40	Gamma Ray (GAPI)	90

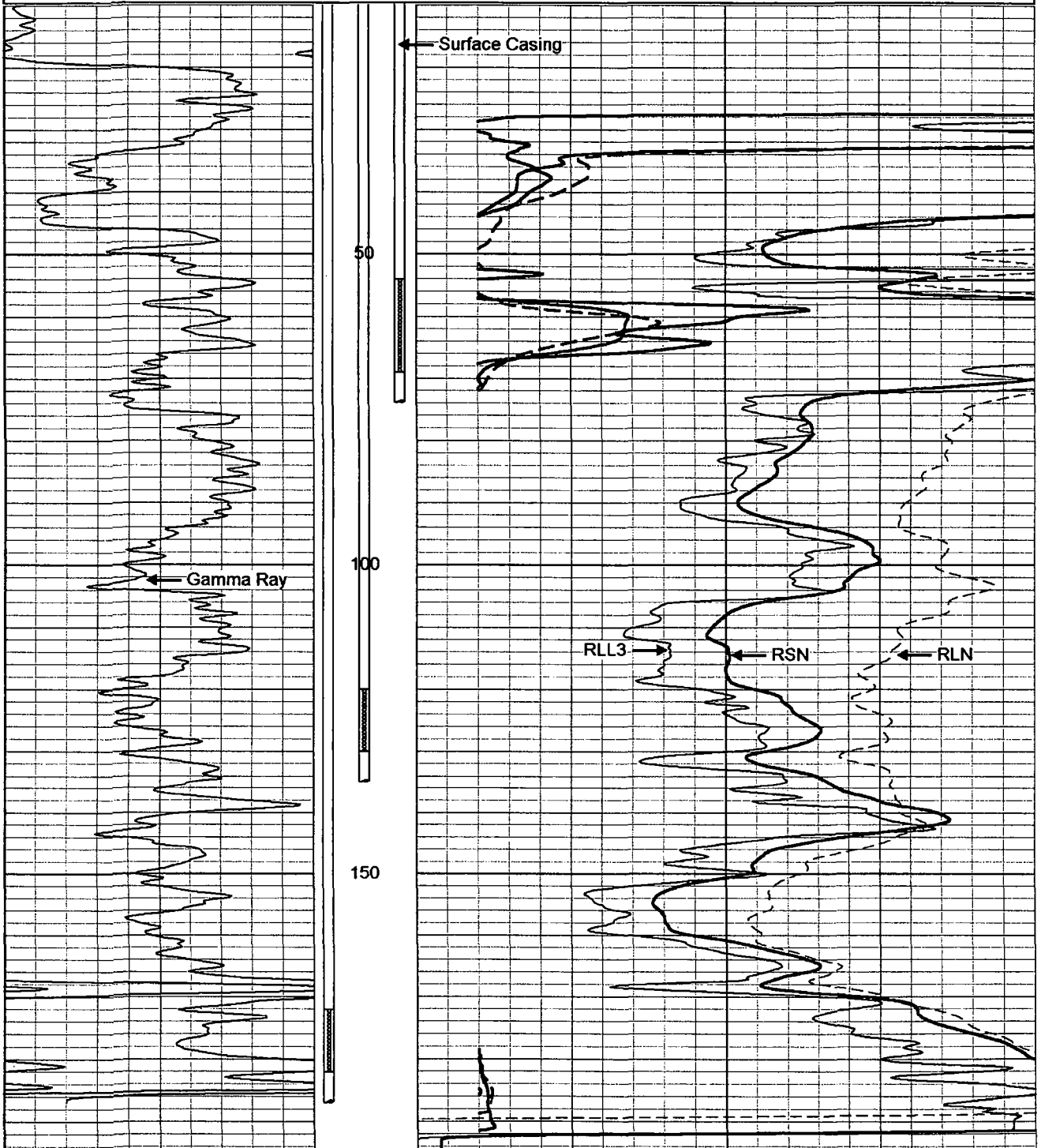
0	RLN (Ohm-m)	50
0	RSN (Ohm-m)	50
0	RMF (Ohm-m)	50
50	RSN (Ohm-m)	500
50	RLN (Ohm-m)	500

0	RLL3 (Ohm-m)	50
50	RLL3 X10 (Ohm-m)	500

Database File: 12091.db
 Dataset Pathname: WDC/MIN17/run1/LL3F
 Presentation Format: GUARD
 Dataset Creation: Fri Jun 24 15:01:32 2005
 Charted by: Depth in Feet scaled 1:240

40 Gamma Ray (GAPI) 90

0	RLL3 (Ohm-m)	50
0	RSN (Ohm-m)	50
0	RLN (Ohm-m)	50
50	RLL3 X10 (Ohm-m)	500
50	RSN X10 (Ohm-m)	500
50	RLN X10 (Ohm-m)	500



40 Gamma Ray (GAPI) 90

0	RLL3 (Ohm-m)	50
0	RSN (Ohm-m)	50
0	RLN (Ohm-m)	50
50	RLL3 X10 (Ohm-m)	500
50	RSN X10 (Ohm-m)	500
50	RLN X10 (Ohm-m)	500

PACIFIC SURVEYS

CALIPER BOREHOLE VOLUMES

Job No.
12091

Company WDC EXPLORATION & WELLS

Well MW-17

File No.

Field SANTA FE SPRINGS

County LOS ANGELES State CA

Location:

PIKE ST.,
EAST OF PACIFIC

Other Services:

GR/L3
E-LOG

Sec. Twp. Rge.

Permanent Datum	G.L.	Elevation	Elevation
Log Measured From	G.L.	0'	above perm. datum
Drilling Measured From	G.L.		

Date	6-24-05		
Run Number	ONE		
Depth Driller	194'		
Depth Logger	194'		
Bottom Logged Interval	193'		
Top Log Interval	0'		
Type Caliper	3 ARM		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
Max. Recorded Temp.	N/A		
pH/Fluid Loss	N/A		
Time Well Ready	2:30 PM		
Time Logger on Bottom	2:40 PM		
Equipment Number	PS-2		
Location	L.A.		
Recorded By	LAPORTE		
Witnessed By	R. HALPERN		

Borehole Record				Gravel Feed/Tubing Schedule			
Run Number	Bit	From	To	Size	Type	From	To

Casing Schedule	Size	Wgt/Ft	Top	Bottom
Surface String	9.5"	COND	0	18'
Production String	2.5"	PVC	0	74'
Production String	2.5"	PVC	0	135'
Production String	2.5"	PVC	0	187'
Production String				

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Comments

XY Caliper Calibration Report

Serial Number:

SHORT

Comprobe

Fri Jun 24 15:27:08 2005

Tool Model:

Small Ring:
Large Ring:

8 in
18 in

Reading with Small Ring:
Reading with Large Ring:

X Caliper
929.6
1666.6

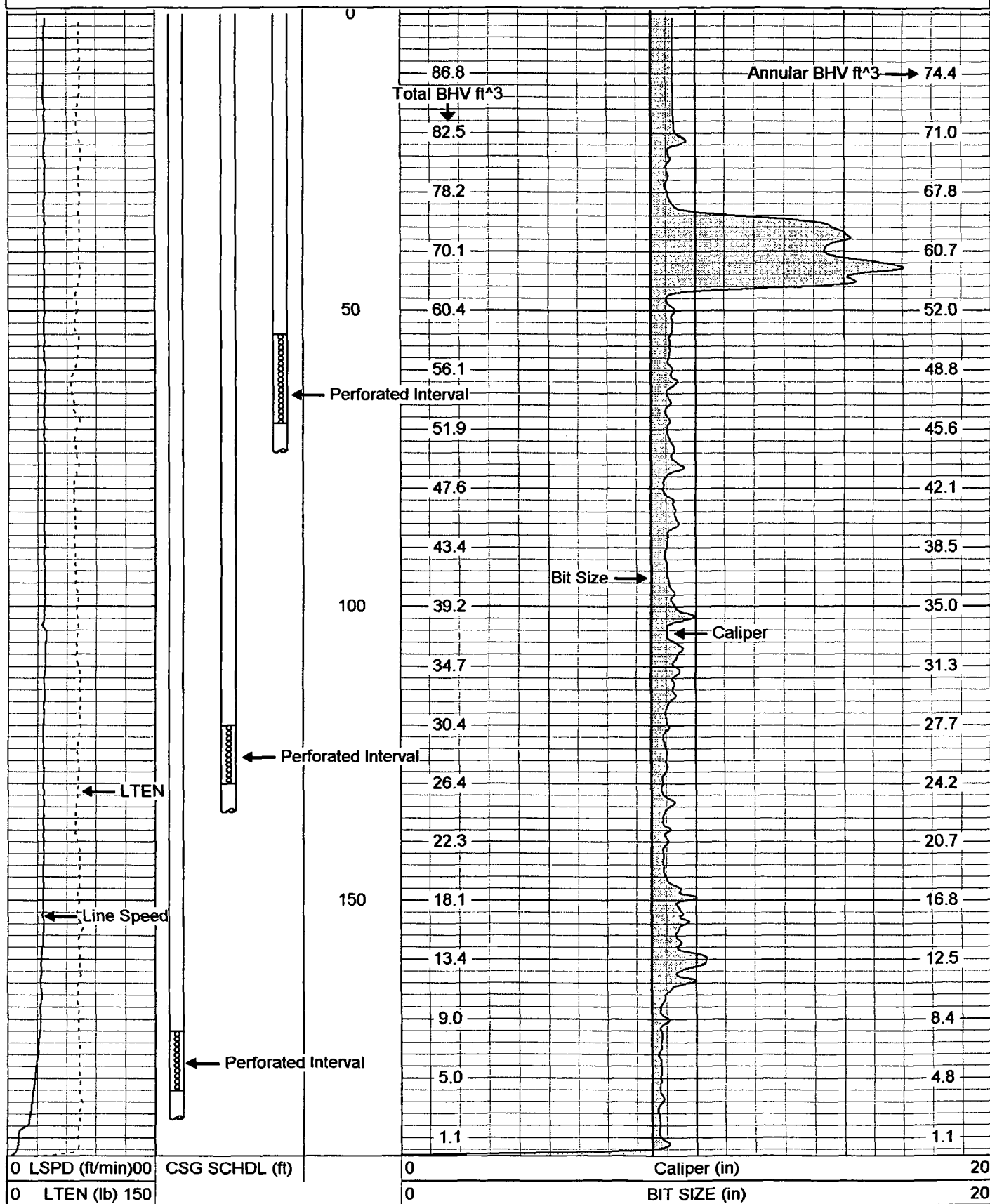
Gain:
Offset:

Y Caliper
929.6
1666.6
0.0135685
-4.6132

cps
cps

Database File: 12091.db
 Dataset Pathname: WDC/MIN17/run1/CAL.1
 Presentation Format: XYC
 Dataset Creation: Fri Jun 24 15:42:35 2005 by Calc 6.0
 Charted by: Depth in Feet scaled 1:240

0 LSPD (ft/min)00	CSG SCHDL (ft)	0	Caliper (in)	20
0 LTEN (lb) 150		0	BIT SIZE (in)	20





SUBJECT: Omega Chemical OU-2

JOB NO: CA000646.0001.00009

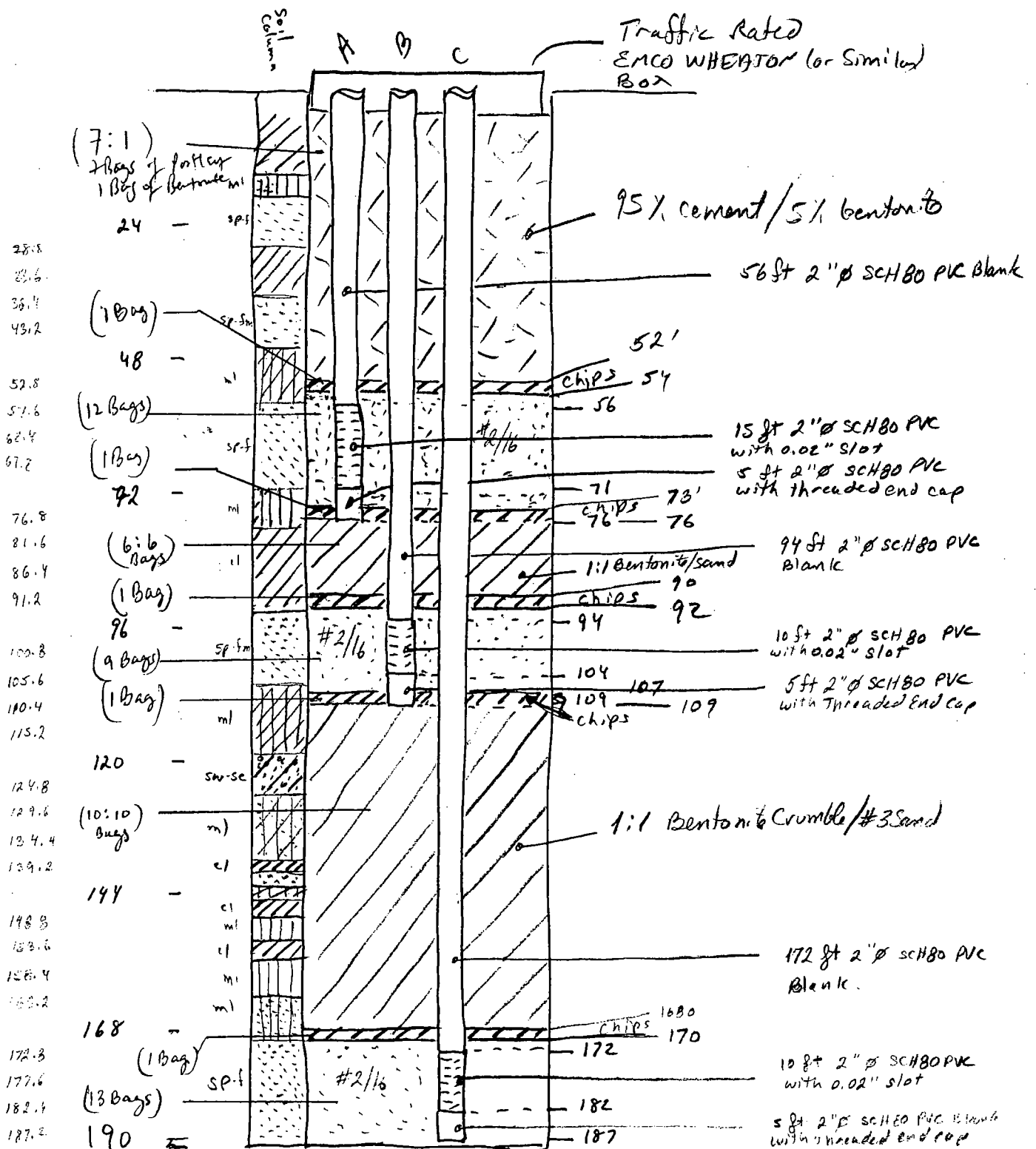
BY: RMT DATE: 6/27/05

CHKD: DATE:

PAGE

SHEET

WELL CONSTRUCTION
DIAGRAM - MW17



LOG OF BORING MW18

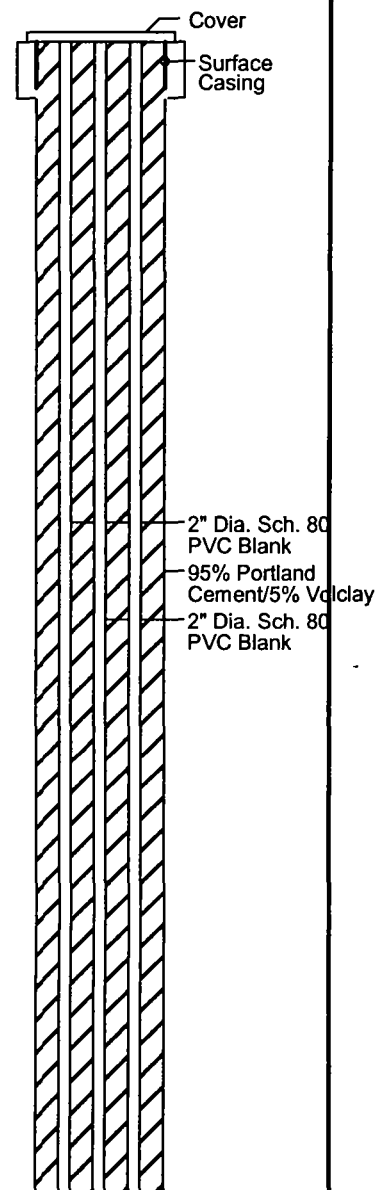
(Page 1 of 8)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed	: June 17, 2005	OVA	: MiniRae
Logged By	: Ronald Halpern, PG	Driller	: Steve, Joe, Daniel
Checked By	: Ronald Halpern, PG	Sampling Method	: Simulprobe/Split Spoon
Drilling Company	: WDC	Diameter	: 8 3/4
Drill Rig	: GF Star30 Mud Rotary	Calibration Gas/Conc	: 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
0				6/9/05 16:20					Grass surface to 6"
5							CL		(Off cyclone): SILTY CLAY, very dark grayish brown (2.5Y 3/2), moist to wet, low to moderate toughness, low plasticity, no dilatency. (4-8' off cyclone): SILTY CLAY, ~10-15% fine to coarse sand (max 4 mm dia.), thick dark yellowish brown (10YR 4/4), silty clay matrix, slightly moist, rolls, moderate to high toughness, moderate plasticity.
10									(8-17' off cyclone): Well graded SAND with CLAY, ~10-15% strong brown (7.5YR 4/6) clay ~85-90%, fine to coarse sand (max 4 mm dia.), strong brown, slightly moist, no odor.
15				16:35 6/10/05 9:15			SW-SC		(17-20' off mud shaker): Same as above.
20									
25									

Well1: MW18A
Well2: MW18B
Well3: MW18C
Elev.: 144.74



In greenbelt on south side of Ann Street, ~140 ft. East of Santa Fe Springs Road, on north side of Liz Clairborne facility at 9400 Santa Fe Springs Road.

Elevation = finished surface; A = Shallow; B = Intermediate; C = Deep

**ARCADIS**

Infrastructure, environment, facilities

LOG OF BORING MW18

(Page 2 of 8)

Omega Chemical Operable Unit 2
Project No. CA000646.0001Date Completed : June 17, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : GF Star30 Mud RotaryOVA : MiniRae
Driller : Steve, Joe, Daniel
Sampling Method : Simulprobe/Split Spoon
Diameter : 8 3/4
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
25				10:17					(Off mud shaker): Poorly graded SAND with silt, ~10-15% silt, ~85-90% fine to medium grained sand, olive brown (2.5Y 4/2).	
30	X			10:40			SP-SM		Poorly graded SAND with SILT, ~10-15% silt, ~85-90% predominantly fine-grained sand with 5% medium-grained sand, olive brown (2.5Y 4/3), wet, single cobble (80 mm dia.), granitic, sub-spherical, subrounded.	
35									(Based on E-Logs)	
40	X			10:55 12:40			CL		(40-42' Split Spoon): SILTY CLAY, stiff, <firm (<1/4" penetration), olive gray (5Y 5/2), moist, light gray (5Y 7/1), high toughness, high plasticity, positive ribbon test, blocky fracture, silty features, olive gray matrix with no definite shape.	2" Dia. Sch. 80 PVC Blank 95% Portland Cement/5% Vol clay 2" Dia. Sch. 80 PVC Blank
45										
50									At 50' from mudpan - same as above.	

Well1: MW18A
Well2: MW18B
Well3: MW18C
Elev.: 144.74In greenbelt on south side of Ann Street, ~140 ft. East of Santa Fe Springs Road, on north side of Liz
Clairborne facility at 9400 Santa Fe Springs Road.

Elevation = finished surface; A = Shallow; B = Intermediate; C = Deep

09-08-2005 09:00 AM Tech5\Omega Chemical\MW-18.BOR

LOG OF BORING MW18

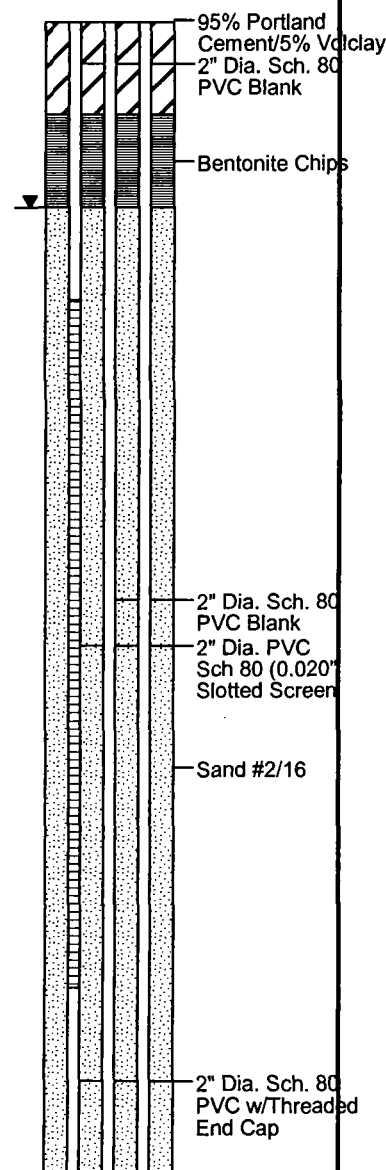
(Page 3 of 8)

 Omega Chemical Operable Unit 2
 Project No. CA000646.0001

 Date Completed : June 17, 2005
 Logged By : Ronald Halpern, PG
 Checked By : Ronald Halpern, PG
 Drilling Company : WDC
 Drill Rig : GF Star30 Mud Rotary

 OVA : MiniRae
 Driller : Steve, Joe, Daniel
 Sampling Method : Simulprobe/Split Spoon
 Diameter : 8 3/4
 Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
50	X			13:35			ML		(50-52' Split Spoon): SILT, firm, light olive brown (2.5Y 5/4), moist, no odor.
							SP-SM		(53' off shaker): Poorly graded fine SAND with SILT, predominantly fine-grained. Wet from 54 feet.
55	X		OC2-PMW18 W-0-03	14:00			SP		(55-57' off Split Spoon): Poorly graded SAND, ~3-5% clay, 95-98% predominantly fine sand (max 0.5 mm dia.), <5% medium grained (max dia. 1 mm), olive brown (2.5Y 4/3), saturated.
	X		OC2-PMW18 W-1-04	6/13/05 7:30					(~58' off mud pan): Increase in grain size to fine and medium Sand (max 2 mm dia.).
60				8:00			SW-SM		(62'): Increasing grain size - grades into well graded SAND with SILT, ~3-5% silt, 85-95% fine to coarse sand, ~5-10% fine sub spherical to sub tabular gravel.
65	X		OC2-PMW18 W-0-06	8:54			GW		(65-66.5' Split Spoon): Well graded GRAVEL, ~5-10% coarse sand, 90-95% fine and coarse gravel (max 30 mm dia.) of igneous and metamorphic origin (quartz, gneiss), gravel, subrounded, sub spherical to elongated.
			OC2-PMW18 W-0-07	10:10					(66.5-67' Split Spoon): Poorly graded SAND, fine-grained (max 0.5 mm dia.), light olive brown (2.5Y 5/3), wet.
70							SP		(72'): Increasing grain size up to 2 mm dia., pale olive (5Y 6/3) with dark mafic minerals.
75									

 Well1: MW18A
 Well2: MW18B
 Well3: MW18C
 Elev.: 144.74


In greenbelt on south side of Ann Street, ~140 ft. East of Santa Fe Springs Road, on north side of Liz Clairborne facility at 9400 Santa Fe Springs Road.

Elevation = finished surface; A = Shallow; B = Intermediate; C = Deep



ARCADIS
Infrastructure, environment, facilities

LOG OF BORING MW18

(Page 4 of 8)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : June 17, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : GF Star30 Mud Rotary

OVA : MiniRae
Driller : Steve, Joe, Daniel
Sampling Method : Simulprobe/Split Spoon
Diameter : 8 3/4
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
75	X		OC2-PMW18 W-0-09	11:12 12:25	0.6				(75-77' from Simulprobe): Well graded SAND with Clay and Gravel: ~10-15% silt, ~40% predominantly fine-gravel (max 19 mm dia.), some coarse (up to 35 mm dia.), ~45-50% fine to coarse sand (max 4 mm dia.), light olive brown (2.5Y 5/4), wet; gravel is of igneous and metamorphic origin, subangular to subrounded, platy to sub spherical.	2" Dia. Sch. 80 PVC w/Threaded End Cap
80							SW-SM		Encountered more rocks at ~82' according to driller. (83-85' off shaker): Fine to coarse SAND with SILT, ~5-10% Silt.	Sand #2/16
85	X		OC2-PMW18 W-0-10	13:40 16:04					(86-87' Split Spoon): Well graded Silty SAND with Gravel: ~10-20% light olive brown (2.5Y 5/4) silt, 30-40% fine and coarse gravel (max 20 mm dia.) subangular and sub spherical, ~40-60% fine to coarse sand, gravel is reworked sediment consisting of gravel-size rocks of igneous metamorphic origin encased in semi-indurated sand and silt layer.	1:1 Bentonite Sand #3
90							SP		(~90' off shaker): Poorly graded SAND, fine to medium, olive (5Y 4/3), saturated.	2" Dia. Sch. 80 PVC Blank
95	X		OC2-PMW18 W-0-12	6/14/05 7:40			GP-GM		(Possible Slough - 95-96.5'): Poorly graded GRAVEL with Sand and Silt, ~5-10% silt, ~20-25% medium to coarse sand, ~70% predominantly fine gravels (up to ~14 mm), ~5% coarse gravel (max 25 mm dia.) subrounded.	Bentonite Chips
100							SP		(97' Split Spoon and Shaker): Poorly graded SAND: fine to medium-grained (max 2 mm dia.), olive (5Y 7/4), saturated. Increasing grain size w/depth (off shaker).	2" Dia. PVC Sch 80 (0.020" Slotted Screen

In greenbelt on south side of Ann Street, ~140 ft. East of Santa Fe Springs Road, on north side of Liz Clairborne facility at 9400 Santa Fe Springs Road.

Elevation = finished surface; A = Shallow; B = Intermediate; C = Deep

LOG OF BORING MW18

(Page 5 of 8)

 Omega Chemical Operable Unit 2
 Project No. CA000646.0001

 Date Completed : June 17, 2005
 Logged By : Ronald Halpern, PG
 Checked By : Ronald Halpern, PG
 Drilling Company : WDC
 Drill Rig : GF Star30 Mud Rotary

 OVA : MiniRae
 Driller : Steve, Joe, Daniel
 Sampling Method : Simulprobe/Split Spoon
 Diameter : 8 3/4
 Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
100							SW-SC		(100' off shaker): Well graded SAND with Clay, ~5-10% fines, ~60% fine to medium Sand, ~40-45% coarse Sand (max 5 mm dia.) subrounded, olive (5Y 7/4), saturated.	Well1: MW18A Well2: MW18B Well3: MW18C Elev.: 144.74
105			OC2-PMW18 S-0-13	9:45 11:00		0%	ML		(107-109' off Split Spoon): SILT, firm, (<=1/4" penetration), olive (5Y 4/3) with strong brown (7.5YR 4/6), vertical banding, moist to very moist, but no saturated, blocky fragmentation.	
110			No Water Recovery							
115			OC2-PMW18 W-0-14	13:05	0.1		SP-SM		(115-119' off Simulprobe): Poorly graded SAND with Silt, predominantly fine Sand, ~5-10% Silt, moist to very moist, olive brown (2.5Y 4/3 - 2.5Y 4/4).	
120							ML			Sand #2/16 2" Dia. Sch. 80 PVC w/Threaded End Cap Bentonite Chips 2" Dia. Sch. 80 PVC Blank 1:1 Bentonite Sand #3
125										

In greenbelt on south side of Ann Street, ~140 ft. East of Santa Fe Springs Road, on north side of Liz Clairborne facility at 9400 Santa Fe Springs Road.

Elevation = finished surface; A = Shallow; B = Intermediate; C = Deep

LOG OF BORING MW18

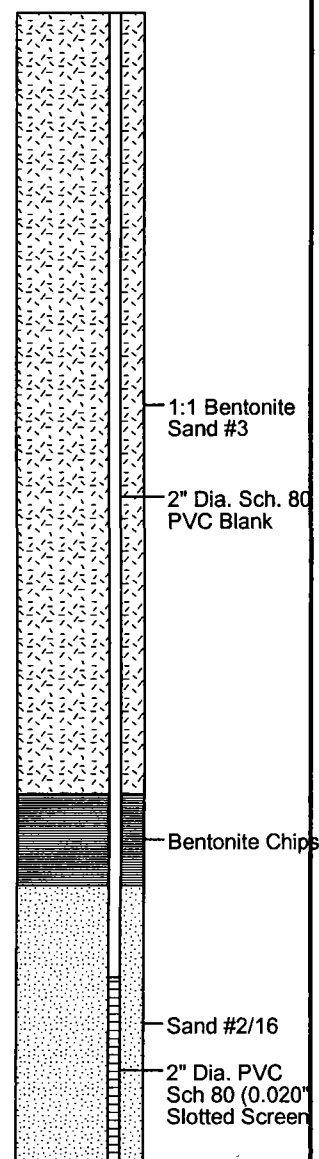
(Page 6 of 8)

 Omega Chemical Operable Unit 2
 Project No. CA000646.0001

 Date Completed : June 17, 2005
 Logged By : Ronald Halpern, PG
 Checked By : Ronald Halpern, PG
 Drilling Company : WDC
 Drill Rig : GF Star30 Mud Rotary

 OVA : MiniRae
 Driller : Steve, Joe, Daniel
 Sampling Method : Simulprobe/Split Spoon
 Diameter : 8 3/4
 Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
125			OC2-PMW18 W-0-15	15:30	0.1				(125-128' off Simulprobe): Clayey SILT, ~10-20% clay, ~80-90% silt, moist to very moist, olive brown (2.5Y 4/4), low toughness, medium plasticity, moderate dilatancy, low dry strength.	
			OC2-PMW18 S-0-16	15:40						
130							ML			
135			OC2-PMW18 S-0-18	6/15/05 7:55	0.4	0%			(135-137' Split Spoon): SILT, firm (<1/4" penetration), olive (5Y 4/4), moist, some light gray artifacts.	
			No Water Recovery							
140							CL		(~141 off mud return): Silty CLAY, yellowish brown (10YR 5/4).	
145			OC2-PMW18 W-0-21	9:35 11:00			ML		(145-147' off Simulprobe): SILT, firm, olive (5Y 4/4), moist, light gray (possible marine) artifacts-looks like wormhole - secondary fill with secondary porosity. Increasing sand content based on E-logs.	
150										

 Well1: MW18A
 Well2: MW18B
 Well3: MW18C
 Elev.: 144.74


In greenbelt on south side of Ann Street, ~140 ft. East of Santa Fe Springs Road, on north side of Liz Clairborne facility at 9400 Santa Fe Springs Road.

Elevation = finished surface; A = Shallow; B = Intermediate; C = Deep

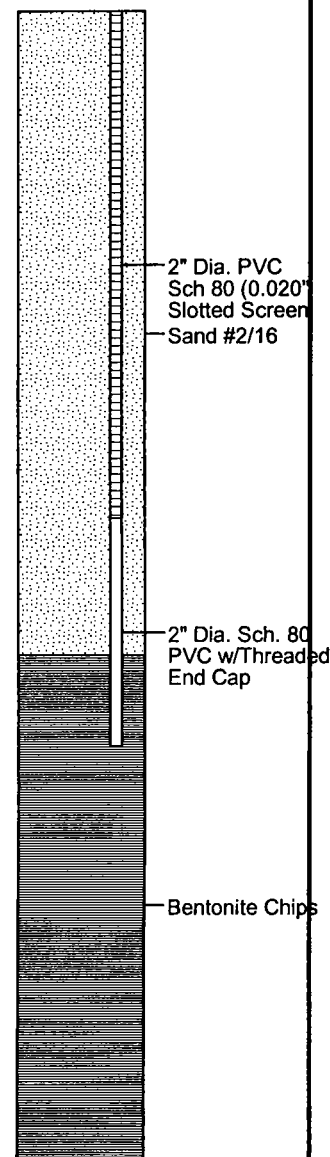
Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : June 17, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : GF Star30 Mud Rotary

OVA : MiniRae
Driller : Steve, Joe, Daniel
Sampling Method : Simulprobe/Split Spoon
Diameter : 8 3/4
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
150							SP-SW		Change in soil type based on driller observation and on material from mud return. Poorly to well graded SAND, very fine to high-end medium-grained (max 2 mm dia.)
155			OC2-PMW18 W-0-22	12:15 13:50			ML		(155-157' from Simulprobe): Clayey SILT, firm, (<1/4" penetration), olive (5Y 4/4), wet, low toughness, high plasticity, rapid dilatancy, low dry strength with low liquid limit.
160							SP-SW		Driller indicates "gravel" ~2' thick at 157-159. E-logs suggest resistant material from ~158-163'.
165			No Water Recovery	14:20 16:50		0%	ML		Clayey SILT (with Sand) off mud return at ~162'. (165-167' Simulprobe): Clayey Sandy SILT, ~10% Clay, 50% Silt, 30-40% fine Sand; firm (<1/4" penetration), olive (5Y 4/4), moist to wet but not saturated.
170				6/16/05 7:15					
175							SP		(Based on E-logs)

Well1: MW18A
Well2: MW18B
Well3: MW18C
Elev.: 144.74



In greenbelt on south side of Ann Street, ~140 ft. East of Santa Fe Springs Road, on north side of Liz Clairborne facility at 9400 Santa Fe Springs Road.

Elevation = finished surface; A = Shallow; B = Intermediate; C = Deep

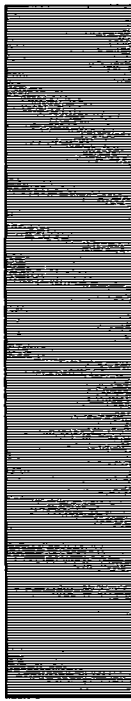
LOG OF BORING MW18

(Page 8 of 8)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : June 17, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : GF Star30 Mud Rotary

OVA : MiniRae
Driller : Steve, Joe, Daniel
Sampling Method : Simulprobe/Split Spoon
Diameter : 8 3/4
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
175	X		OC2-PMW18 W-0-24	9:50	0.1 0.1		SP		(175-176' Simulprobe): Poorly graded SAND, ~5% silt, moist to wet but not saturated, olive gray (5Y 4/2).	
	X						ML		(176-177' Simulprobe): SILT, moist to wet, not saturated, olive gray (5Y 4/2), ~1 cm horizontal layer of yellowish discoloration.	
180									(180' off mud return): Poorly graded SAND, fine to medium-grained (up to 1.5 mm), less than 3% coarse, driller indicates some gravel.	
185	X		OC2-PMW18 W-0-26	12:50			SP		(185-187' off Simulprobe): Poorly graded SAND, fine-grained (max 0.2 mm dia.), grayish brown (2.5Y 5/2), saturated; horizontal oxidized banding at ~186.5 ft. (1" thick) with horizontal fracture plane. Oxidized banding is strong brown (7.5YR 4/6) to dark yellowish brown (10YR 4/6).	
190									Bottom of boring 190'.	
195										
200										

Bentonite Chips

In greenbelt on south side of Ann Street, ~140 ft. East of Santa Fe Springs Road, on north side of Liz Clairborne facility at 9400 Santa Fe Springs Road.

Elevation = finished surface; A = Shallow; B = Intermediate; C = Deep

PMW18

SAMPLE IDENTIFICATION LOG

Date	Time	Operable Unit	Well Location	Sampled Medium (Water or Soil)	Sample Type (0 thru 6)	Sequential Sample No.	Remarks
Sample Type: 0 - Primary Sample; 1 - Field Duplicate; 2 - Field Blank; 3 - Equipment Blank; 4 - Trip Blank; 5 - MS/MSD; 6 - Regulatory Split.							
6/10/05	7:45	OC2	PMW18	W	4	01	Trip 1x40ml VOA
	7:50	OC2	PMW18	W	2	02	Field Blank 3x40ml VOA
	15:20	OC2	PMW18	W	0	03	@52' 3x40ml VOA
	15:20	OC2	PMW18	W	1	04	@52' 2x40ml VOA
6/13	8:25	OC2	PMW18	W	4	05	Trip 1x40ml VOA
	10:15	OC2	PMW18	W	0	06	@67' 4x40ml VOA-clear
	10:15	OC2	PMW18	S	0	07	Soil Sample 66.5-67
	10:35	OC2	PMW18	W	3	08	Equip Blank
	12:25	OC2	PMW18	W	0	09	@77' 4x40ml VOA
	16:04	OC2	PMW18	W	0	10	@87' 4x40ml VOA-clear
6/14	07:30	OC2	PMW18	W	4	11	Trip Blank
	07:40	OC2	PMW18	W	0	12	@97' 3x40ml VOA-clear
	11:00	OC2	PMW18	S	0	13	Soil 108-108.5 3"x4"
		OC2	PMW18	W	0	14	@115'
	13:05	OC2	PMW18	W	0	15	@118' 4x40ml VOA-clear
	15:30	OC2	PMW18	W	0	15	@128' 4x40ml VOA-clear
	15:40	OC2	PMW18	S	0	16	@125-128' 3"x4"
6/15	07:45	OC2	PMW18	W	4	17	Trip 1x40ml VOA
	07:55	OC2	PMW18	S	0	18	@135.5-136' 1x3"x4"
	08:22	OC2	PMW18	W	3	19	Equip Blank 3x40ml VOA
	08:35	OC2	PMW18	W	2	20	Field Blank 3x40ml VOA
	11:00	OC2	PMW18	W	0	21	@148' 3x40ml VOA-clear
	13:50	OC2	PMW18	S	0	22	@158' 2 1/2 x 10m VOA
6/16/05	07:30	OC2	PMW18	W	4	23	Trip 1x40ml VOA
	09:50	OC2	PMW18	W	0	24	@177' 5x40ml VOA (muddy)
	09:50	OC2	PMW18	S	0	25	@175-176' 3"x4"
	12:50	OC2	PMW18	W	0	26	@187' 5x40ml VOA - muddy

Field Dup 10% of Primary
 Field Blank 1st + 10% primary
 Equip Blank 1/ sampling event
 Trip every cooler.

PACIFIC SURVEYS

ELECTRIC LOG LATEROLOG 3 GAMMA-RAY

Job No.
12083

Company WDC EXPLORATION & WELLS

Well PMW-18

Field SANTA FE SPRINGS

County LOS ANGELES State CA

Location:

IN ANN STREET, EAST OF SANTA FE SPRINGS RD, IN FRONT OF 9400
SANTA FE SPRINGS RD.
OMEGA CHEMICAL OU-2

Other Services:

LL3/GR
CALIPER

Sec.	Twp.	Rge.	Elevation	Elevation
Permanent Datum	G. L.			
Log Measured From	G. L.	0'	above perm. datum	K.B. D.P. G.L.
Drilling Measured From	G. L.			
Date	6/16/2005			
Run Number	ONE			
Depth Driller	191'			
Depth Logger	193'			
Bottom Logged Interval	193'			
Top Log Interval	10'			
Casing Driller	10" @ 20'			
Casing Logger	20'			
Bit Size	8.75"			
Type Fluid in Hole	BENTONITE			
Density / Viscosity	N/A			
pH / Fluid Loss	N/A			
Source of Sample	PIT			
Rm @ Meas. Temp	8.3 @ 77 F			
Rmf @ Meas. Temp	9.3 @ 77 F			
Rmc @ Meas. Temp	N/A			
Source of Rmf / Rmc	MEAS			
Rm @ BHT	N/A			
Time Circulation Stopped	12:45			
Time Logger on Bottom	14:20			
Max. Recorded Temperature	N/A			
Equipment Number	PS-1			
Location	L.A.			
Recorded By	T. HOWARD			
Witnessed By				

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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

ELOG Calibration Report

Serial:
Model:

D1
DTQ

Shop Calibration Performed:
 Before Survey Verification Performed:
 After Survey Verification Performed:

Sun Oct 03 15:58:27 2004
 Fri Mar 28 18:39:54 2003
 Tue Nov 20 13:45:24 2001

Shop Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	8.338	99.830		10.200	102.200	Ohm-m	1.006	1.815
Long	4.448	94.107		10.200	102.200	Ohm-m	1.026	-21.000
IEE	133.593	6285.944	counts	0.146	6.879	A		
VSN	89.009	7086.491	counts	1.698	135.166	V		
VLN	130.741	1836.815	counts	2.494	35.035	V		

Before Survey Verification

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	255.170	100.412		46.444	100.411	Ohm-m	-0.349	135.426
Long	1150.040	103.869		103.264	103.264	Ohm-m	0.219	80.559
IEE	140.620	6475.111	counts	0.154	7.086	A		
VSN	403.139	7304.796	counts	7.689	139.330	V		
VLN	454.231	1889.074	counts	8.664	36.032	V		

After Survey Verification

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	0.000	99.861		0.000	99.853	Ohm-m	1.000	0.000
Long	0.000	102.069		102.055	102.055	Ohm-m	1.000	0.000
IEE	129.370	6528.851	counts	0.142	7.145	A		
VSN	142.833	7325.000	counts	2.724	139.715	V		
VLN	114.778	1871.738	counts	2.189	35.701	V		

After Survey Verification compared to Before Survey Calibration

	Zero			Cal		
	Before	After		Before	After	
Short	46.444	0.000	Ohm-m	100.411	99.853	Ohm-m
Long	331.945	0.000	Ohm-m	103.264	102.055	Ohm-m

Gamma Ray Calibration Report

Serial Number: D1
 Tool Model: ELOG
 Performed: Mon Jan 26 16:20:05 2004

Calibrator Value: 162 GAPI

Background Reading: 172.547 cps
 Calibrator Reading: 717.938 cps

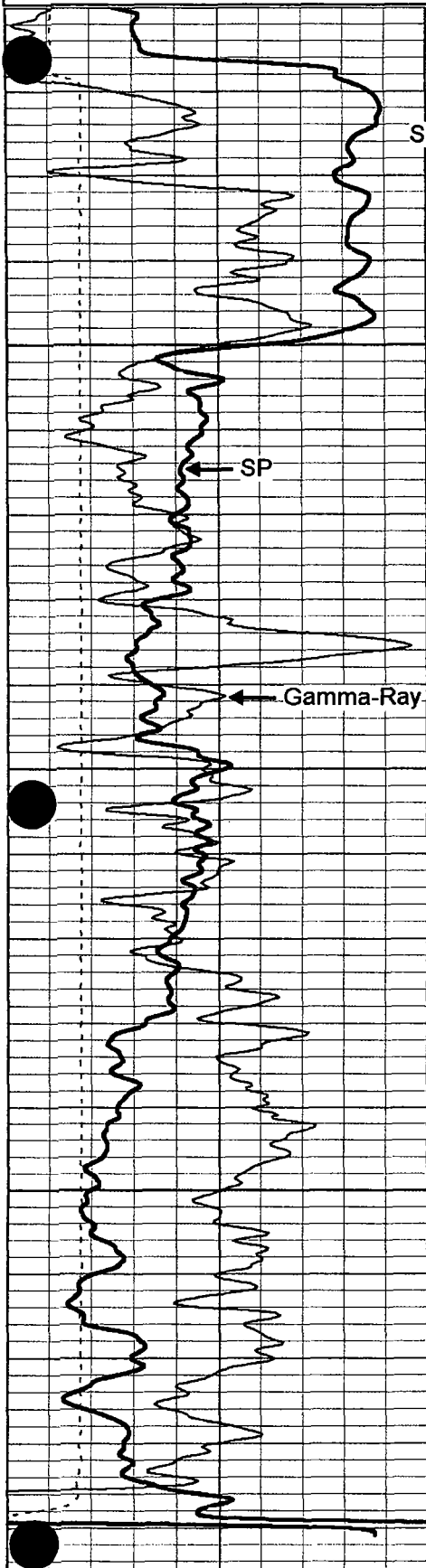
Sensitivity: 0.297034 GAPI/cps

Database File: 12083.db
 Dataset Pathname: ELOG_UP1
 Presentation Format: ELOG
 Dataset Creation: Thu Jun 16 14:21:04 2005 by Log Warrior Version 6.6
 Charted by: Depth in Feet scaled 1:240

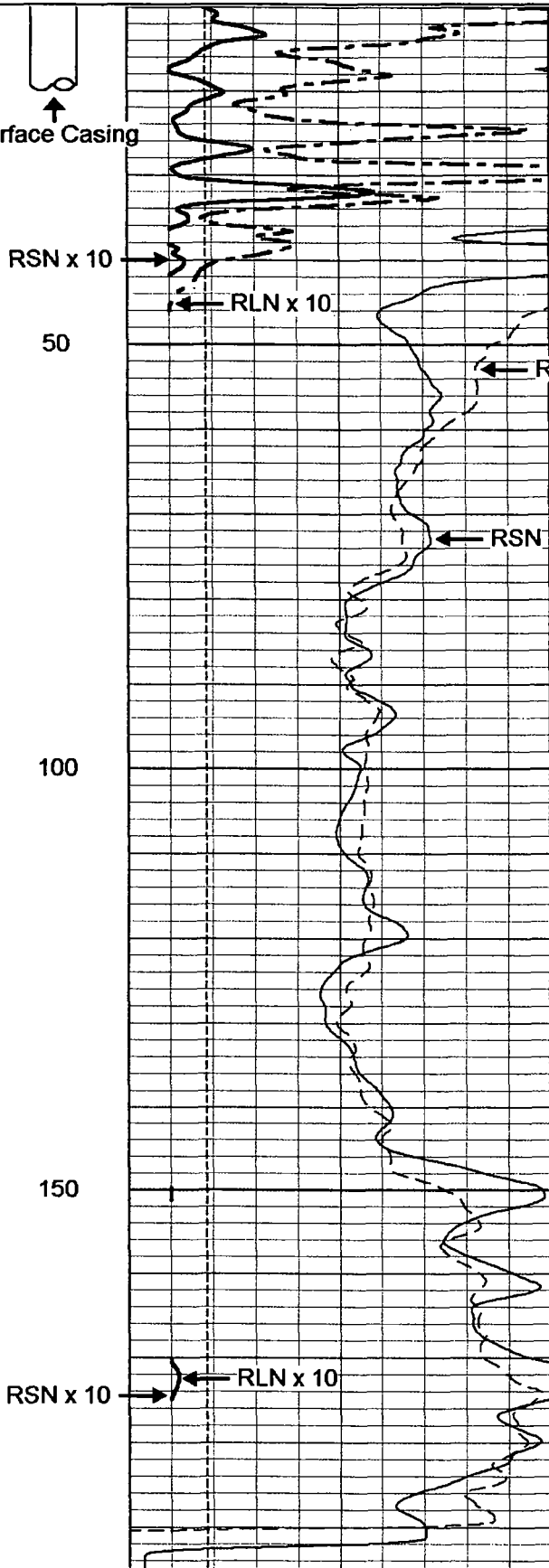
-150	SP (mV)	-70	0	RSN (Ohm-m)	50	0	RLL3 (Ohm-m)	50
40	Gamma-Ray (GAPI)	90	0	RLN (Ohm-m)	50	50	RLL3 x 10 (Ohm-m)	500

0 Line Speed (ft/min) 100

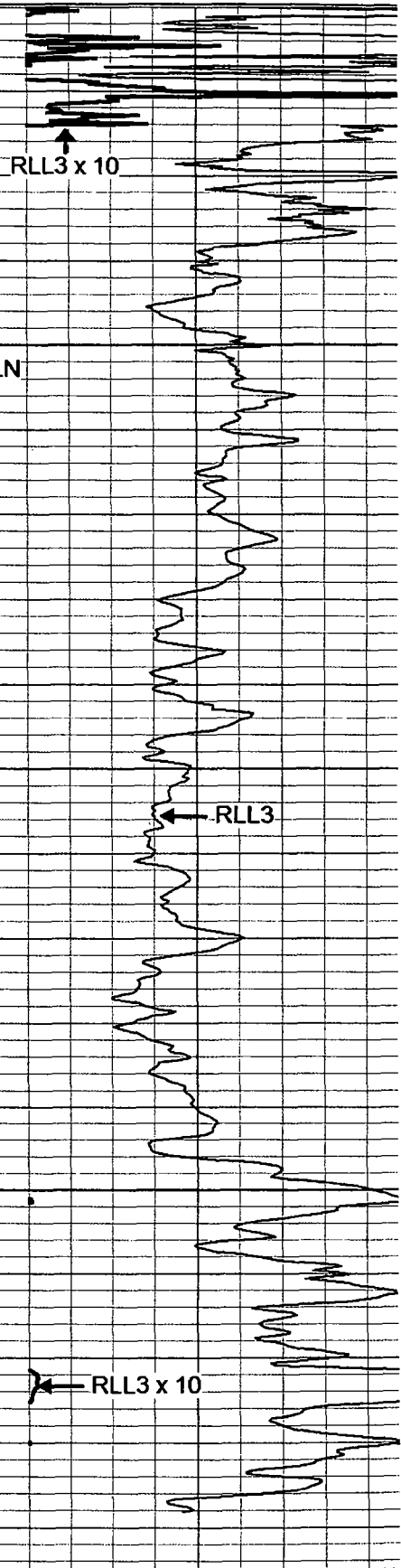
0	RMF (Ohm-m)	50
50	RSN x 10 (Ohm-m)	500
50	RLN x 10 (Ohm-m)	500



-150	SP (mV)	-70
40	Gamma-Ray (GAPI)	90
0	Line Speed (ft/min)	100



0	RSN (Ohm-m)	50
0	RLN (Ohm-m)	50
0	RMF (Ohm-m)	50
50	RSN x 10 (Ohm-m)	500
50	RLN x 10 (Ohm-m)	500



0	RLL3 (Ohm-m)	50
50	RLL3 x 10 (Ohm-m)	500

PACIFIC SURVEYS

LATEROLOG 3 GAMMA-RAY

Job No.
12083

Company WDC EXPLORATION & WELLS

Well PMW-18

Field SANTA FE SPRINGS

County LOS ANGELES State CA

Location:

IN ANN STREET, EAST OF SANTA FE SPRINGS RD, IN FRONT OF 9400
SANTA FE SPRINGS RD.
OMEGA CHEMICAL OU-2

Other Services:

EL/GR
CALIPER

Sec.	Twp.	Rge.	Elevation above perm. datum	Elevation K.B. D.F. G.L.
Permanent Datum	G.L.			
Log Measured From	G.L.	0'		
Drilling Measured From	G.L.			

Date	6/16/2005		
Run Number	ONE		
Depth Driller	192'		
Depth Logger	193'		
Bottom Logged Interval	193'		
Top Log Interval	10'		
Casing Driller	10" @ 20'		
Casing Logger	20'		
Bit Size	8.75"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	8.3 @ 77 F		
Rmf @ Meas. Temp	9.3 @ 77 F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEAS		
Rm @ BHT	N/A		
Time Circulation Stopped	12:45		
Time Logger on Bottom	14:20		
Max. Recorded Temperature	N/A		
Equipment Number	PS-1		
Location	L.A.		
Recorded By	T. HOWARD		
Witnessed By			

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Comments

Gamma Ray Calibration Report

Serial Number:
Tool Model:
Performed:

13

GROH

Mon Jan 26 16:29:15 2004

Calibrator Value:	162	GAPI
Background Reading:	35.1944	
Calibrator Reading:	162.483	
Sensitivity:	1.2727	GAPI/

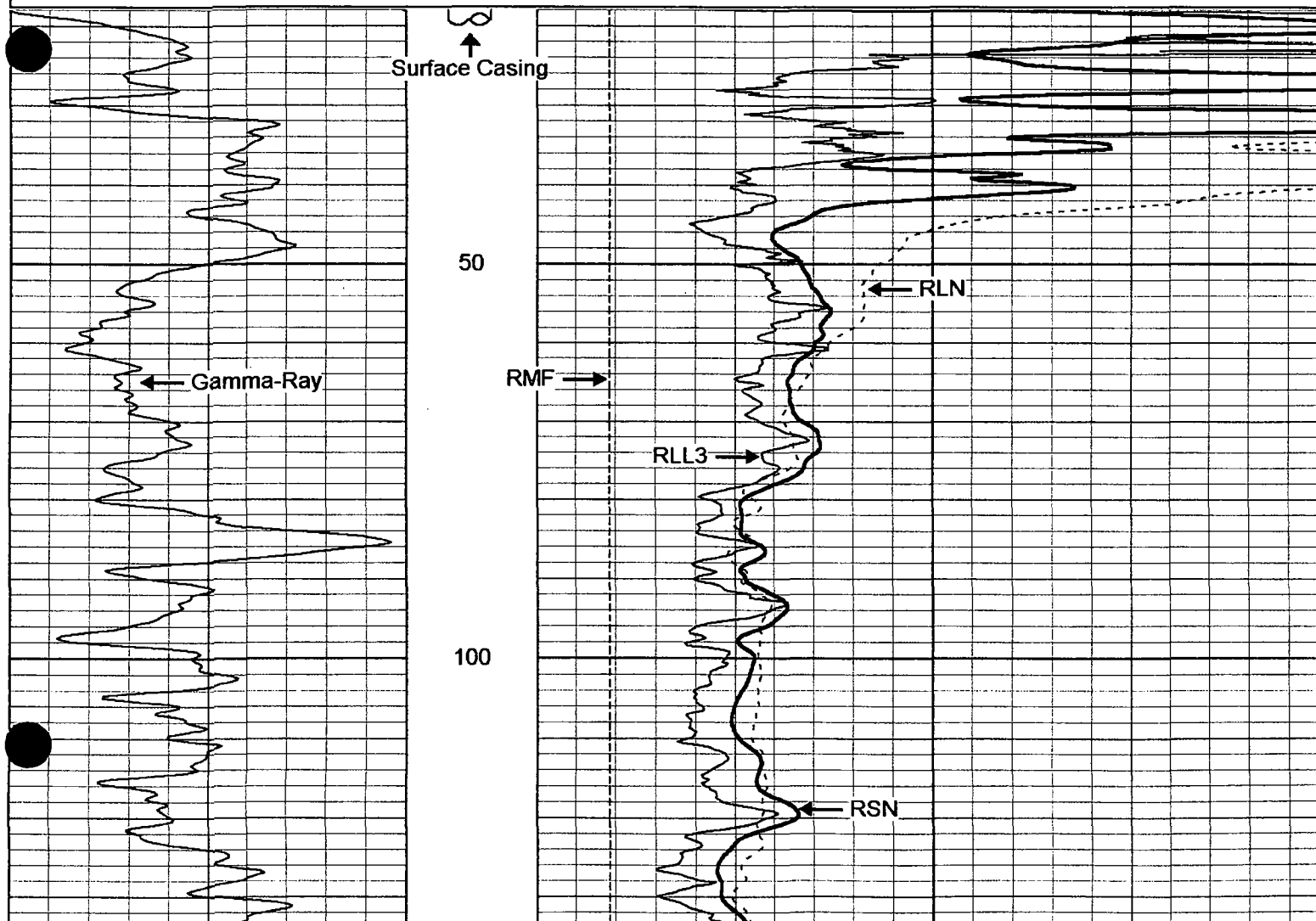
Simplec Long Guard Calibration Report

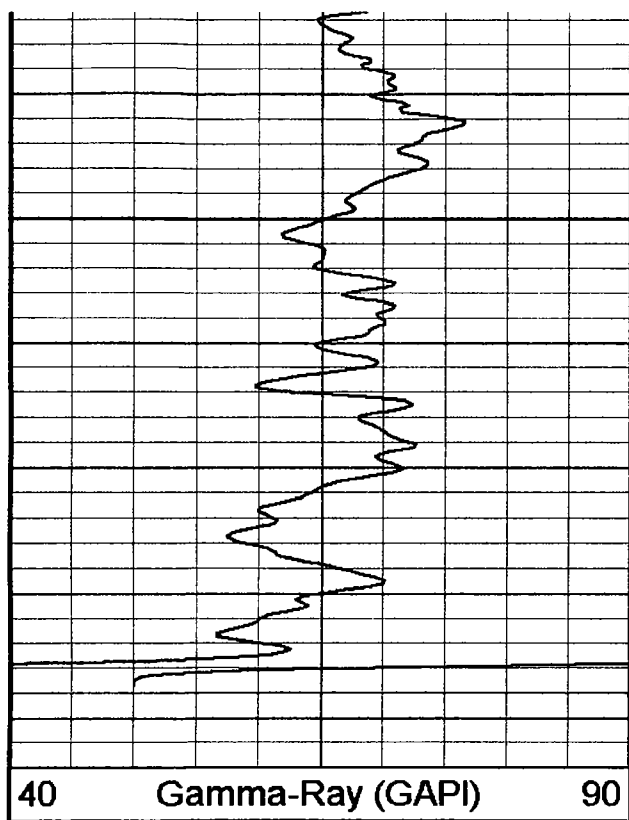
Serial Number:	231
Tool Model:	M&W
Performed:	Tue Feb 08 11:47:13 2005

System Reading	Calibration Reference
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0.158	5.000
1.620	50.000
7.860	250.000
15.699	500.000

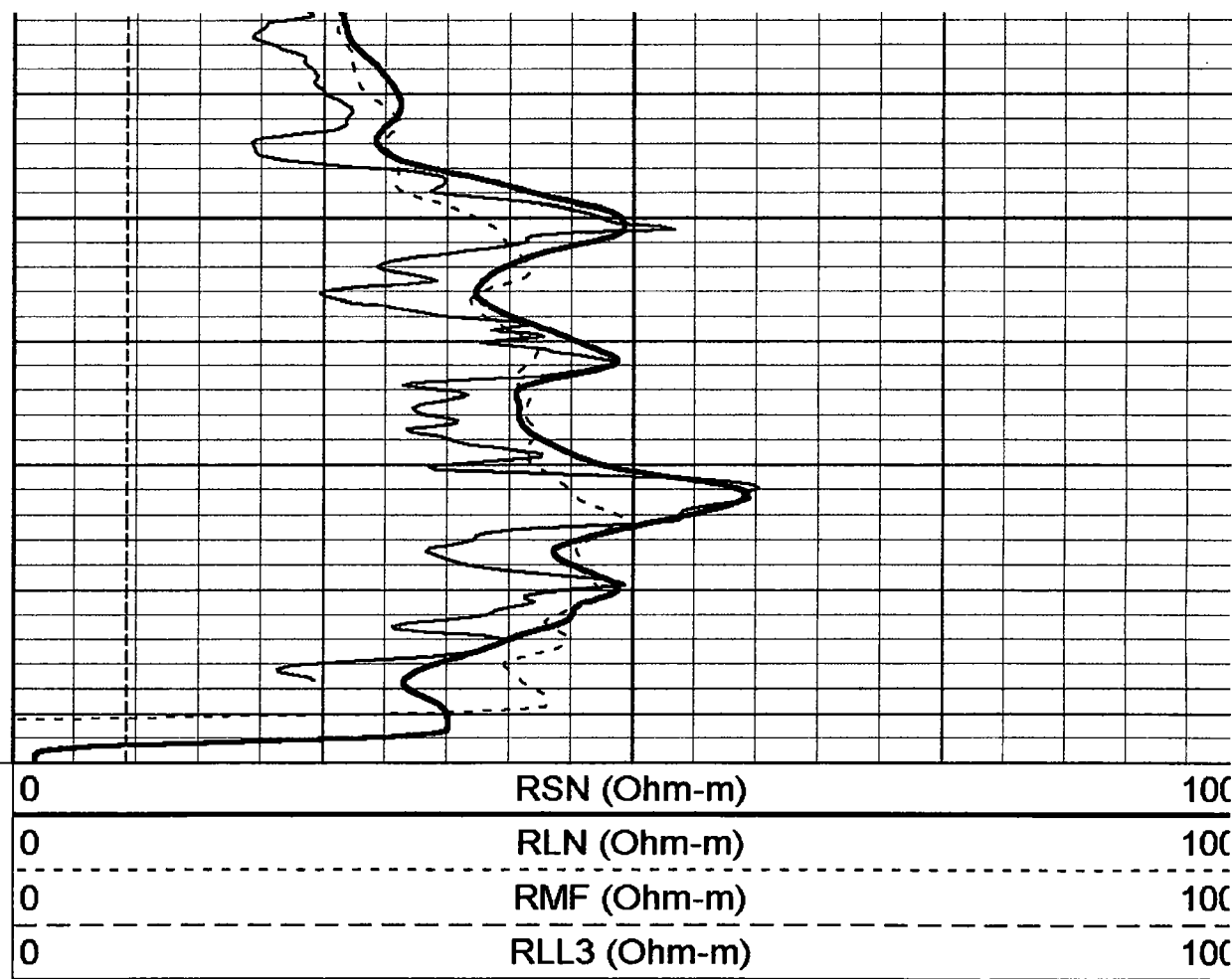
Database File: 12083.db
 Dataset Pathname: LL3
 Presentation Format: GUARD
 Dataset Creation: Thu Jun 16 14:47:51 2005 by Log Warrior Version 6.6
 Charted by: Depth in Feet scaled 1:240

40	Gamma-Ray (GAPI)	90	0	RSN (Ohm-m)	100
			0	RLN (Ohm-m)	100
			0	RMF (Ohm-m)	100
			0	RLL3 (Ohm-m)	100





150



PACIFIC SURVEYS

CALIPER BOREHOLE VOLUMES

Job No.
12083

Company WDC EXPLORATION & WELLS
Well PMW-18
Field SANTA FE SPRINGS
County LOS ANGELES State CA

Location:
IN ANN STREET, EAST OF SANTA FE SPRINGS RD, IN FRONT OF 9400
SANTA FE SPRINGS RD.
OMEGA CHEMICAL OU-2

Other Services:

LL3/GR
EL/GR

Sec.	Twp.	Rge.	Elevation above perm. datum	Elevation K.B. D.F. G.L.
Permanent Datum	G.L.			
Log Measured From	G.L.	0'		
Drilling Measured From	G.L.			

Date	6/16/2005
Run Number	ONE
Depth Driller	191'
Depth Logger	193'
Bottom Logged Interval	193'
Top Log Interval	10'
Type Caliper	3-ARM
Type Fluid in Hole	BENTONITE
Density / Viscosity	N/A
Max. Recorded Temp.	N/A
pH/Fluid Loss	N/A
Time Well Ready	14:10
Time Logger on Bottom	14:20
Equipment Number	PS-1
Location	L.A.
Recorded By	T. HOWARD
Witnessed By	

Borehole Record

Gravel Feed/Tubing Schedule

Run Number	Bit	From	To	Size	Type	From	To
ONE	N/A						
TWO	8.75"	0'	193'				

Casing Sched.	Size	Wgt/Ft	Top	Bottom
Surface String	10"	N/A	+2	20'
Production String				
Production String				
Production String				
Production String				

All interpretations are opinions based on inferences from electrical or other measurements and Pacific Surveys cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to Pacific Surveys' general terms and conditions set out in our current Price Schedule.

Comments

XY Caliper Calibration Report

Serial Number:
Tool Model:
Performed:

Short
Comprobe
Mon Nov 22 10:26:56 2004

<<< Fold Here >>>

Small Ring:
Large Ring:

6
16

in
in

X Caliper

Y Caliper

Reading with Small Ring:
Reading with Large Ring:

245.8
559.5

245.8
559.5

cps
cps

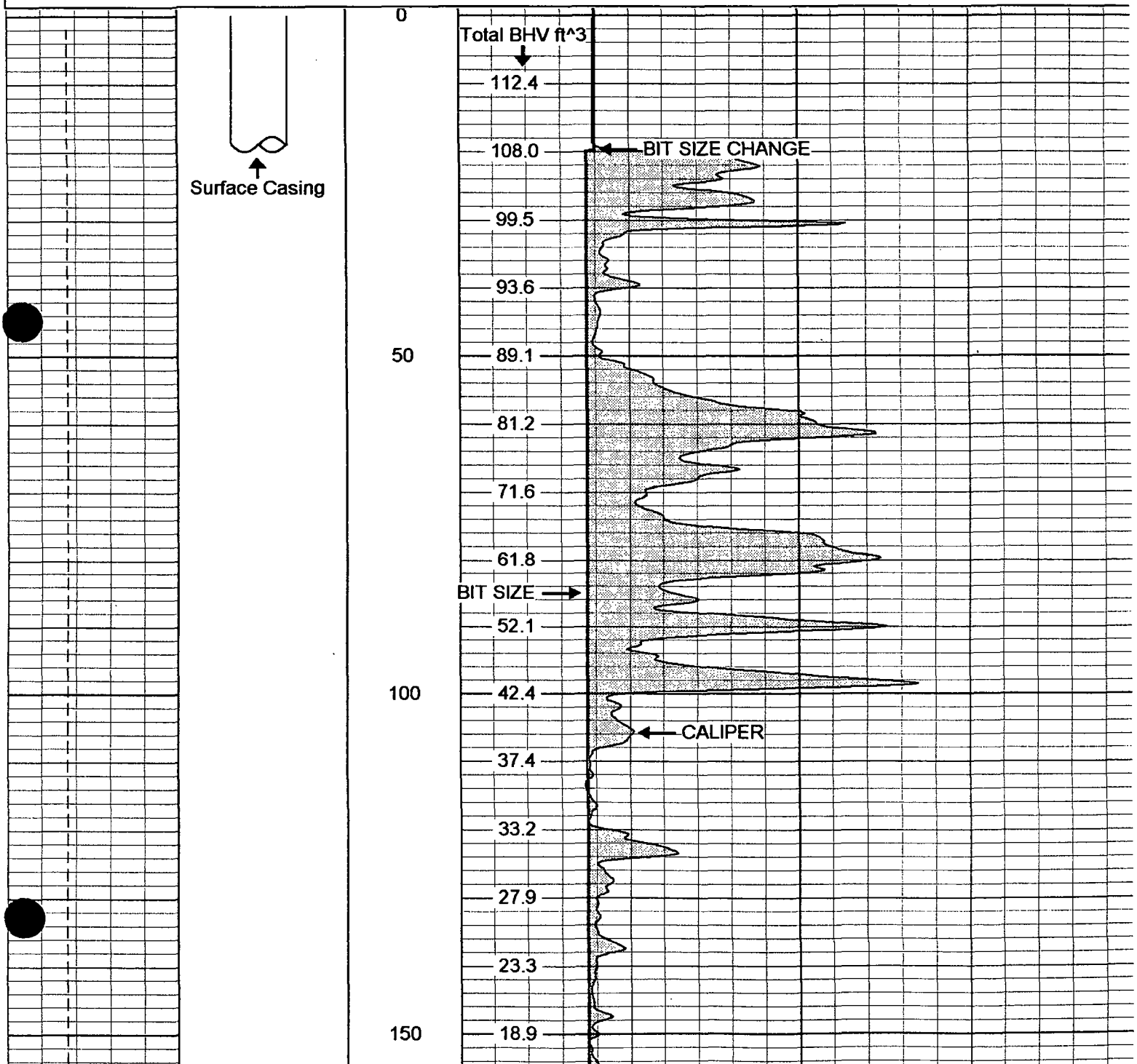
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Offset:

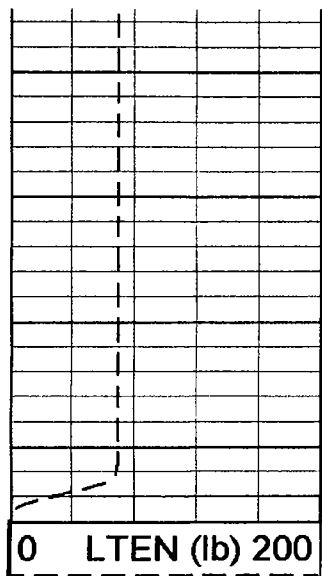
0.0318776
-1.83551

0.0318776
-1.83551

Database File: 12083.db
Dataset Pathname: CAL
Presentation Format: XYC2
Dataset Creation: Thu Jun 16 15:22:22 2005 by Log Warrior Version 6.6
Charted by: Depth in Feet scaled 1:240

0	LTEN (lb) 200	CSG SCHLD	5	CALIPER (in)	25
			5	BIT SIZE (in)	25

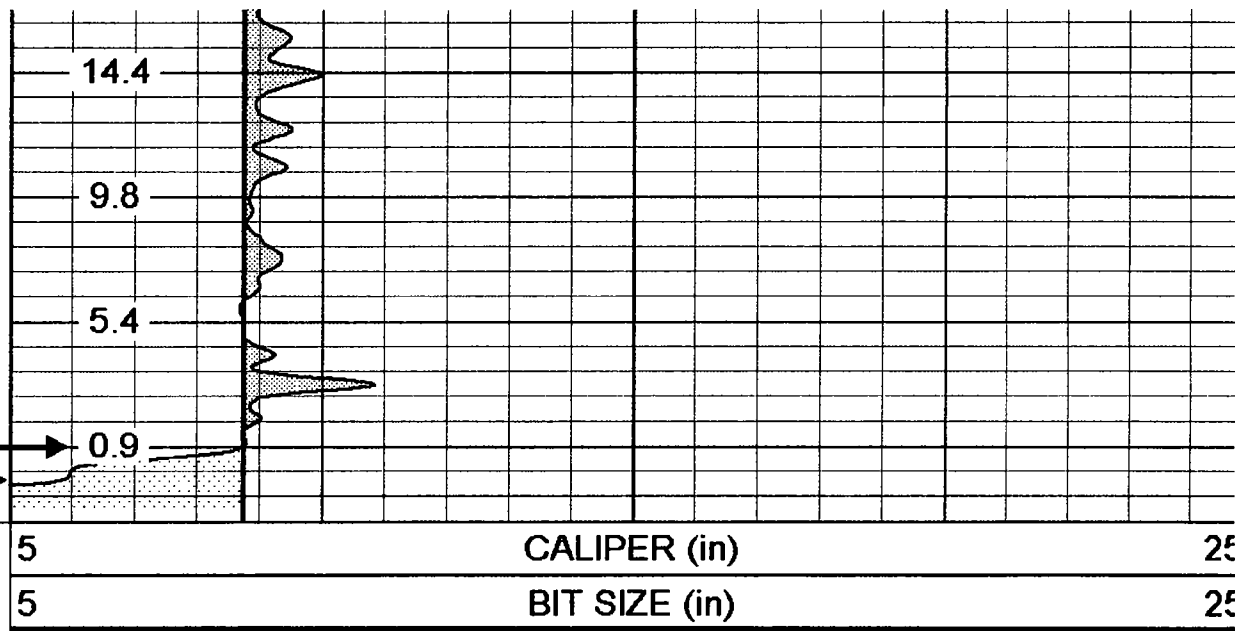


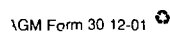


CSG SCHLD

Total BHV ft³ →
First Reading →

160





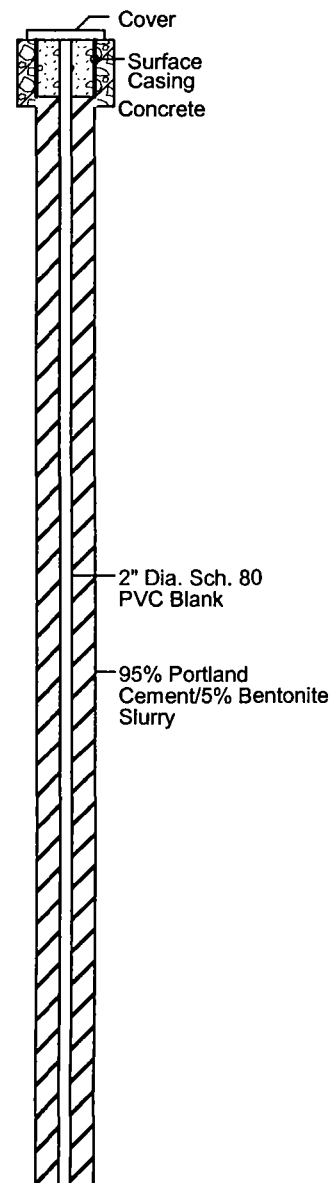
Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 3, 2006
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Sonic SpeedStar 15K

OVA : MiniRae
Driller :
Sampling Method : Core/Simulprobe
Diameter : 6"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
0									Concrete to ~4".
5							ML		(0.5-5') SILT with Clay, medium stiff, dark yellowish brown (10YR 3/6) to brown (7.5YR 4/3), slightly moist.
									(5-9' Core) Silt, medium stiff, brown (10YR 4/3), moist, low toughness, low plasticity, low dry strength.
10							SP-SM		(9-11' Core) Poorly graded SAND with Silt to Silty SAND, ~10-20% Silt, ~80-90% fine Sand, medium dense, dark grayish brown (10YR 4/2), moist.
15							ML		(11-12' Core) SILT with Sand: ~20% fine Sand, ~80% Silt, olive gray (5Y 5/2), slightly moist, no odor. (12-18' Core) Non plastic SILT, stiff, dark greenish gray (Gley 1 4/2), mottled with light greenish gray (Gley 1 7/1), moist, no odor.
20									(18-19' Core) Non plastic SILT, soft, dark greenish gray (Gley 1 4/1), wet, no odor, (bordering fine Sand, max. diameter ~0.05 mm).

Well: MW19
Elev.: 158.94



DESCRIPTION OF BORING LOCATION: In sidewalk on southside of McCann, opposite Bell Ranch Drive.

NOTES: Depth in feet below ground surface (bgs). Continuous core; Elevation noted is ground surface elevation.



ARCADIS
Infrastructure, environment, facilities

LOG OF BORING MW19

(Page 2 of 4)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 3, 2006
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Sonic SpeedStar 15K

OVA : MiniRae
Driller :
Sampling Method : Core/Simulprobe
Diameter : 6"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
20				11:15					(19-25') Clayey SILT with Sand: ~5-10% Clay; ~20% very fine Sand, ~70-75% Silt; hard, very dark grayish brown (10YR 3/2 to 2.5Y 3/2), slightly moist; moderate to high toughness, low to moderate plasticity, slow dilatancy.	
25							ML		(25-30') Non plastic SILT; medium stiff, dark olive gray (5Y 3/2), moist.	
30									(30-32') Non plastic SILT; hard to medium stiff, dark olive gray (5Y 3/2), mottled with olive brown (2.5Y 4/3), slightly moist to moist.	
							SP		(32-33) Poorly graded SAND; fine-grained, olive gray (5Y 5/2), slightly moist.	
35				12:10			ML		(33-33.5') Non plastic SILT: medium stiff to stiff, dark greenish gray (Gley 1 4/1) mottled with light greenish gray (Gley 1 7/1), moist. (33.5-39) Non plastic SILT bordering very fine Sand (<0.05 mm diameter); olive gray (5Y 5/2), slightly moist.	
40							SP-SM		(39-46) Poorly graded SAND with Silt: ~10-20% Silt, 80-90% fine Sand (<0.4 mm diameter), olive gray (5Y 4/2), slightly moist.	

Well: MW19
Elev.: 158.94

2" Dia. Sch. 80
PVC Blank
95% Portland
Cement/5% Bentonite
Slurry

DESCRIPTION OF BORING LOCATION: In sidewalk on southside of McCann, opposite Bell Ranch Drive.

NOTES: Depth in feet below ground surface (bgs). Continuous core; Elevation noted is ground surface elevation.

09-08-2006 - C:\COMMON\Tech5\Omega Chemical\MW-19.BOR

LOG OF BORING MW19

(Page 3 of 4)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 3, 2006
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Sonic SpeedStar 15K
OVA : MiniRae
Driller :
Sampling Method : Core/Simulprobe
Diameter : 6"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	Well: MW19 Elev.: 158.94
40										
45										
50										
55				13:05			SP-SM		(46-55' Core) Poorly graded SAND/Silty SAND; cemented ~20% silt, ~60% fine Sand, ~20% medium and coarse Sand (subangular); dark greenish gray (Gley 1 4/1), dry; trace subrounded fine gravel (to 8 mm diameter)(igneous).	95% Portland Cement/5% Bentonite Slurry 2" Dia. Sch. 80 PVC Blank 3/4" Chips
55							SW		(55-57' Core) Well graded SAND; fine to coarse grained (max 4 mm diameter) of granitic origin; dark gray, wet.	
57							SP-SM		(57-58' Core) Poorly graded SAND with Silt/Silty SAND: ~10-20% silt, 80-90% fine to medium grained (max diameter 0.75 mm) Sand, dark greenish gray (Gley 1 4/1), wet.	#2/16 Sand
60							SP		(58-65' Core) Predominantly fine to medium grained (80-85%), some coarse (10%), gray, wet.	2" Dia. Sch. 80 PVC Sch 80 (0.020" Slotted Screen)

DESCRIPTION OF BORING LOCATION: In sidewalk on southside of McCann, opposite Bell Ranch Drive.

NOTES: Depth in feet below ground surface (bgs). Continuous core; Elevation noted is ground surface elevation.

**ARCADIS**

Infrastructure, environment, facilities

LOG OF BORING MW19

(Page 4 of 4)

Omega Chemical Operable Unit 2
Project No. CA000646.0001Date Completed : May 3, 2006
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Sonic SpeedStar 15KOVA : MiniRae
Driller :
Sampling Method : Core/Simulprobe
Diameter : 6"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
60									
65									
68			OC2-PMW19 W-0-3	16:25			SP		Same as above. (68-75' Core) Poorly graded SAND, fine to medium grained (max 1 mm diameter), olive (5Y 5/4), wet.
70									
75				16:50			CL		(75-76' Core) Silty CLAY; stiff, brown (10YR 4/3), moist.
80									

Well: MW19
Elev.: 158.942" Dia. Sch. 80
PVC
Sch 80 (0.020"
Slotted Screen)

#2/16 Sand

2" Dia. Sch. 80
PVC Blank

Bottom of boring at 76'.

DESCRIPTION OF BORING LOCATION: In sidewalk on southside of McCann, opposite Bell Ranch Drive.

NOTES: Depth in feet below ground surface (bgs). Continuous core; Elevation noted is ground surface elevation.

09-08-2006 G:\COMMON\MTech\5\Omega Chemical\MW-19.BOR

065 365
056332, -331, -304
056332, -33, 34
056304, -33, -34



ARCADIS

Infrastructure, environment, facilities

LOG OF BORING MW20

(Page 1 of 8)

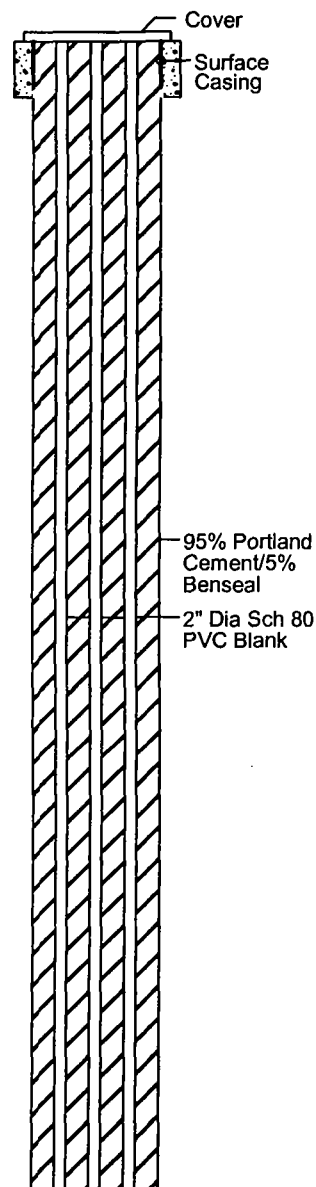
Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 22, 2006
Logged By : Jeremy Cook
Checked By : Ronald Halpern
Drilling Company : WDC
Drill Rig : SpeedStar 30K Mud Rotary

OVA : MiniRae
Driller :
Sampling Method : Core/Simulprobe
Diameter : 10"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
0									SILT/SILT with Sand and Gravel, ~10-15% medium to coarse sand and fine gravel (1-10 mm diameter) reddish brown, dry.
5							ML		(8') Same as above.
10									
15							SP		Poorly graded SAND; predominantly very fine and fine-grained ~3-5% medium to coarse sand, ~3-5% fine gravel (to 10 mm diameter); reddish brown, slightly moist.
20									
25							SW		Well graded SAND, fine to coarse, subrounded grains (max 5 mm diameter).

Well1: MW-20A
Well2: MW-20B
Well3: MW-20C
Elev.: 141.99



PMW-20 is in th sidewalk on east side of Geary Road in Santa Fe Springs, adjacent to the southwest corner of Cascade Water Pumps facility. Directly to the east is a oil field with 6 wells.

Elevation noted is ground surface. A = Shallow; B = Intermediate; C = Deep

09-08-2006 COMMONM/Tech5/Omega Chemical/MW-20.BOR

**ARCADIS**

Infrastructure, environment, facilities

LOG OF BORING MW20

(Page 2 of 8)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 22, 2006

Logged By : Jeremy Cook

Checked By : Ronald Halpern

Drilling Company : WDC

Drill Rig : SpeedStar 30K Mud Rotary

OVA : MiniRae

Driller :

Sampling Method : Core/Simulprobe

Diameter : 10"

Calibration Gas/Conc : 100 ppm isobutylene

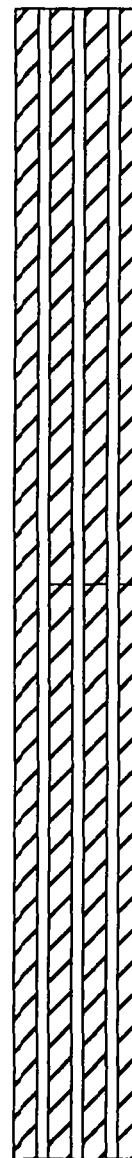
Well1: MW-20A

Well2: MW-20B

Well3: MW-20C

Elev.: 141.99

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
25							SW		
30									Poorly graded SAND: medium to coarse, poorly graded, subangular-subrounded.
35									
40							SP		
45									Ended 5/17/06.
50									Poorly graded SAND with GRAVEL, fine to medium sand; appears to be increasing in moisture content.

95% Portland
Cement/5%
Benseal2" Dia Sch 80
PVC Blank

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09-08-2006 COMMONM\Tech5\Omegamega Chemical\MW-20 BOR

LOG OF BORING MW20

(Page 3 of 8)

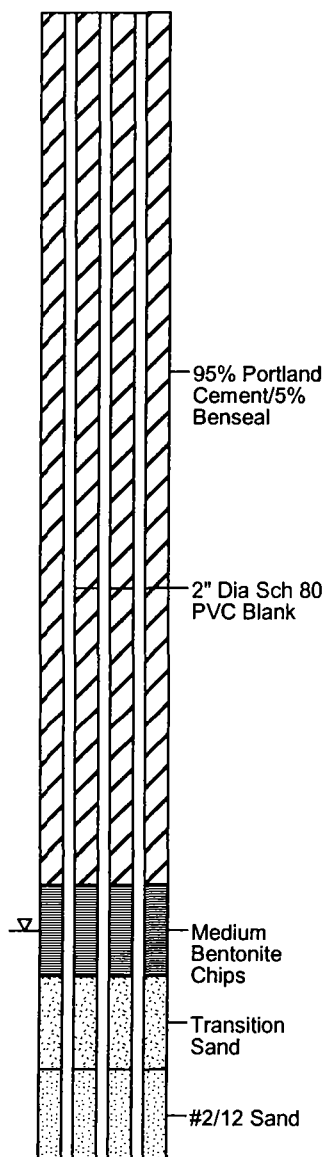
Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 22, 2006
Logged By : Jeremy Cook
Checked By : Ronald Halpern
Drilling Company : WDC
Drill Rig : SpeedStar 30K Mud Rotary

OVA : MiniRae
Driller :
Sampling Method : Core/Simulprobe
Diameter : 10"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
50									
55							SP		
60							CL-ML		SILTY CLAY with Sand: medium to coarse sand and fine gravel, gravel is subrounded, (max 10 mm diameter).
									SILTY CLAY, dark gray, passes ribbon test.
65							ML		SILT with CLAY.
70									
			OC2-PMW20 W-0-1				SP-SM		(Driller notes chatter at 71').
									Poorly graded SAND, fine-grained (0.1-0.5 mm diameter), some silt, wet.
75									

Well1: MW-20A
Well2: MW-20B
Well3: MW-20C
Elev.: 141.99



PMW-20 is in th sidewalk on east side of Geary Road in Santa Fe Springs, adjacent to the southwest corner of Cascade Water Pumps facility. Directly to the east is a oil field with 6 wells.

Elevation noted is ground surface. A = Shallow; B = Intermediate; C = Deep

LOG OF BORING MW20

(Page 4 of 8)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed	: May 22, 2006	OVA	: MiniRae
Logged By	: Jeremy Cook	Driller	:
Checked By	: Ronald Halpern	Sampling Method	: Core/Simulprobe
Drilling Company	: WDC	Diameter	: 10"
Drill Rig	: SpeedStar 30K Mud Rotary	Calibration Gas/Conc	: 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
75										Well1: MW-20A Well2: MW-20B Well3: MW-20C Elev.: 141.99
80	X		OC2-PMW20 W-1-2							
	X		OC2-PMW20 W-0-3	13:00			SP-SM		Poorly graded SAND with Silt; fine-grained, wet.	2" Dia PVC Sch 80 (0.020" Slotted Screen
85										#2/12 Sand
90	X		OC2-PMW20 W-0-5	15:30						2" Dia Sch 80 PVC Blank
95							ML		Non plastic SILT, dark olive brown, moist.	2" Dia Sch 80 PVC with Threaded End Cap
100										1:1 Bentonite Crumble/ Sand #3

PMW-20 is in the sidewalk on east side of Geary Road in Santa Fe Springs, adjacent to the southwest corner of Cascade Water Pumps facility. Directly to the east is a oil field with 6 wells.

Elevation noted is ground surface. A = Shallow; B = Intermediate; C = Deep

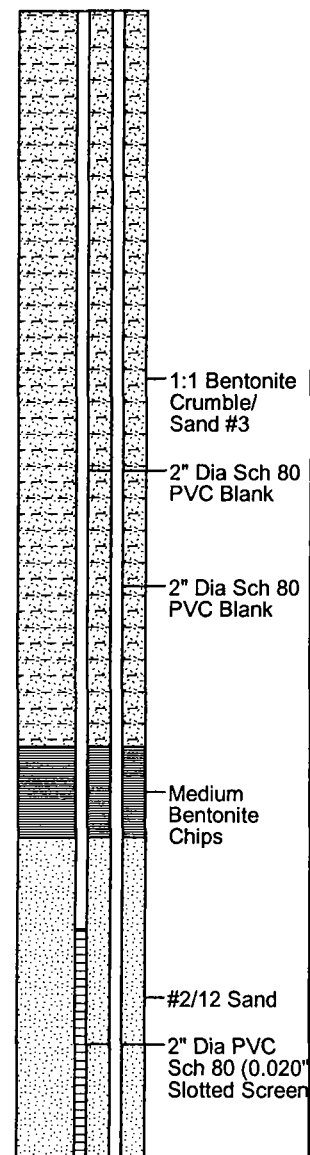
Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 22, 2006
Logged By : Jeremy Cook
Checked By : Ronald Halpern
Drilling Company : WDC
Drill Rig : SpeedStar 30K Mud Rotary

OVA : MiniRae
Driller :
Sampling Method : Core/Simulprobe
Diameter : 10"
Calibration Gas/Conc : 100 ppm isobutylene

Well1: MW-20A
Well2: MW-20B
Well3: MW-20C
Elev.: 141.99

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
100			OC2-PMW20 W-0-6	16:40			ML		
				Resume 5/19/06			SP-SC		Poorly graded SAND with Clay, fine-grained.
105							SP		Chatter from ~105-110, possible Gravel.
110			OC2-PMW20 W-0-08	9:30					(111-113' Simulprobe) Poorly graded SAND, fine-grained, olive (5Y 4/3), wet, no odor.
115							CL		(113' Shoe) SILTY CLAY, medium stiff to stiff, yellowish brown (10YR 5/4), moist to wet, moderately tough, moderate plasticity, medium dilatency, high dry strength, no odor.
120			OC2-PMW20 W-0-11	10:10 11:35			SP		(117' Off mud return), SAND, poorly graded, predominantly fine to medium-grained.
125									(122-123' Simulprobe) Poorly graded SAND: ~3-5% Silt, ~95-97% predominantly fine to medium Sand (~0.1-2 mm diameter), ~3-5% coarse Sand (max 5 mm diameter), olive (5Y 4/3), saturated, sand subrounded, ~10-20% mafic minerals, ~60-70% quartz, ~20-30% plags.



PMW-20 is in th sidewalk on east side of Geary Road in Santa Fe Springs, adjacent to the southwest corner of Cascade Water Pumps facility. Directly to the east is a oil field with 6 wells.

Elevation noted is ground surface. A = Shallow; B = Intermediate; C = Deep

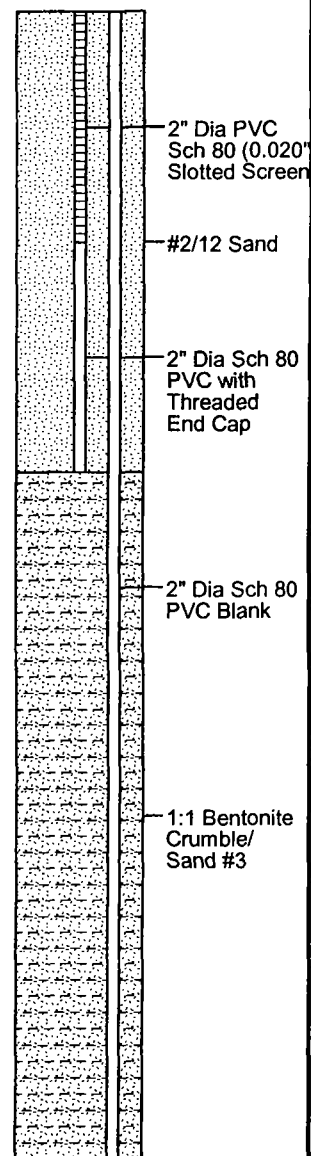
Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 22, 2006
Logged By : Jeremy Cook
Checked By : Ronald Halpern
Drilling Company : WDC
Drill Rig : SpeedStar 30K Mud Rotary

OVA : MiniRae
Driller :
Sampling Method : Core/Simulprobe
Diameter : 10"
Calibration Gas/Conc : 100 ppm isobutylene

Well1: MW-20A
Well2: MW-20B
Well3: MW-20C
Elev.: 141.99

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
125							SP		(Off mud return at ~127'): Poorly graded SAND - as above.
130			OC2-PMW20 W-0-12	12:00 13:35			SW		(130-133' Simulprobe) Well graded SAND: ~3-5% Silt, fine to coarse Sand (95%), trace fine gravel (max 10 mm diameter), subrounded, ~25% mafic, ~50-70% quartz, 15-25% plag and other, saturated, no odor.
135							SP-SM		(133' in Shoe) Poorly graded SAND with SILT, ~5-10% Silt, 90-95% fine grained sand, olive (5Y 4/3), wet.
140			OC2-PMW20 W-0-14	14:25 5/19/06 5/22/06			ML-SM		SANDY SILT, possible change to Silt from mud return. (142-143' Simulprobe) Poorly graded Sandy non-plastic SILT/SILTY SAND, ~40-60% Silt, ~60-40% fine Sand, (max diameter ~0.3 mm), olive gray (5Y 4/2), with strong brown (7.5Y 4/6 to 5/6) oxidation staining on horizontal planes, wet, micaceous.
145									(148-149' Mud Return) Well graded SAND, fine to coarse grained (max diameter 5 mm), ~20-30% mafic, 20-30% plag, ~5 ortho, 35-55% quartz, subangular, speckled black, white, olive brown, saturated.
150							SW		



PMW-20 is in the sidewalk on east side of Geary Road in Santa Fe Springs, adjacent to the southwest corner of Cascade Water Pumps facility. Directly to the east is a oil field with 6 wells.

Elevation noted is ground surface. A = Shallow; B = Intermediate; C = Deep

LOG OF BORING MW20

(Page 7 of 8)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed	: May 22, 2006	OVA	: MiniRae
Logged By	: Jeremy Cook	Driller	:
Checked By	: Ronald Halpern	Sampling Method	: Core/Simulprobe
Drilling Company	: WDC	Diameter	: 10"
Drill Rig	: SpeedStar 30K Mud Rotary	Calibration Gas/Conc	: 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
150	X		OC2-PMW20 W-0-16	9:15			SW		
155			OC2-PMW20 W-1-17	9:15			ML		(Shoe of Simulprobe and mud return) (153') CLAY with Sand, lean, ~10-20% fine to medium Sand, ~80-90% Silty Clay, dark greenish gray (Gley 1 4/1), wet.
160	X			9:50					
				11:32		None			(161.5-162.5' Simulprobe) SILT with Clay, hard, dark greenish grey (Gley 1 4/1), moist, moderately plastic.
165							CL		(162.5-163') Silty CLAY, hard, dark greenish gray, moist, moderately plastic.
									At 168' off mud return - same as above.
170	X			13:35		None	ML		(171.5-173 Simulprobe) SILT with Clay, stiff (fingernail impression), dark greenish gray (Gley 1 4/1), moist, low plasticity.
175									

Well1: MW-20A
Well2: MW-20B
Well3: MW-20C
Elev.: 141.99



1:1 Bentonite
Crumble/
Sand #3
2" Dia Sch 80
PVC Blank

PMW-20 is in the sidewalk on east side of Geary Road in Santa Fe Springs, adjacent to the southwest corner of Cascade Water Pumps facility. Directly to the east is a oil field with 6 wells.

Elevation noted is ground surface. A = Shallow; B = Intermediate; C = Deep

LOG OF BORING MW20

(Page 8 of 8)

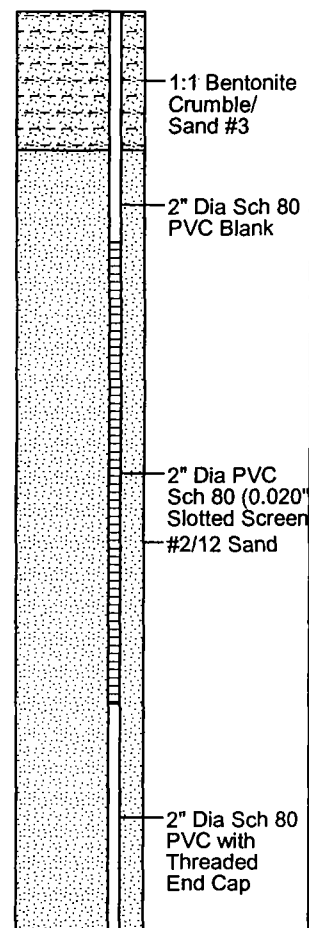
Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 22, 2006
Logged By : Jeremy Cook
Checked By : Ronald Halpern
Drilling Company : WDC
Drill Rig : SpeedStar 30K Mud Rotary

OVA : MiniRae
Driller :
Sampling Method : Core/Simulprobe
Diameter : 10"
Calibration Gas/Conc : 100 ppm isobutylene

Well1: MW-20A
Well2: MW-20B
Well3: MW-20C
Elev.: 141.99

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
175							ML		
180			OC2-PMW20 W-0-18	14:26 15:47			SP		(181.5-183 Simulprobe) Poorly graded SAND, ~3-5% silt, ~95-97% fine to medium Sand (max 2 mm diameter), dark greenish gray to dark greenish black (Gley 1 3/1 to 2.5/1), wet.
185									At 187' off mud return - same as above.
190									
195				16:25			SM CL		At 193' off mud return - same as above.
195									(194-194.75' Simulprobe) Well graded Silty SAND w/gravel and clay, ~20-25% coarse gravel (~15-25 mm dia., subangular- subrounded igneous), ~50-60% fine to coarse sand, ~20-25% dark greenish gray silt with clay (Gley 1 3/1) matrix.
195									(194.75-195' Shoe) Silty CLAY, ~5-10% fine to medium sand in a silty clay matrix, stiff, dark greenish gray to greenish black (Gley 1 3/1-2.5/1), moist.
200									Bottom of boring 195'.



PMW-20 is in the sidewalk on east side of Geary Road in Santa Fe Springs, adjacent to the southwest corner of Cascade Water Pumps facility. Directly to the east is an oil field with 6 wells.

Elevation noted is ground surface. A = Shallow; B = Intermediate; C = Deep

SAMPLE IDENTIFICATION LOG

	Date	Time	Operable Unit	Well Location	Sampled Medium (Water or Soil)	Sample Type ¹ (0 thru 6)	Sequential Sample No.	Remarks
	Sample Type: 0 - Primary Sample; 1 - Field Duplicate; 2 - Field Blank; 3 - Equipment Blank 4 - Trip Blank; 5 - MS/MSD; 6 - Regulatory Split.							
CHAIN 1	5/18/06	1155	OC2	PMW-20	Water	0	1	73' cont. id: 055417 -19 CLEAN
TRIP →	5/18/06	1155 1300	OC2	PMW20	W	1	2	83' Dup " : 055420 -22 CLEAN
TRIP	5/18/06	1300	OC2	PMW20	W	0	3	83' " " : 055423 -25 CLEAN
	5/18/06		OC2	PMW20	W	4	4	TRIP BLANK 055426
	5/18/06	1530	OC2	PMW20	W	0	5	93' " " : 055427-28 CLEAN
not included on 5/18 lab pickup	5/18/06	1640	OC2	PMW20	W	0	6	103' 055430-32 SLIGHTLY CLOUDY
	5/19/06	08:00	OC2	PMW20	W	4	07	TRIP 1X40ml 085389?
		09:00	OC2	PMW20	W	0	08	@113' 2X40ml -18 055436, -27, -36
		09:40	OC2	PMW20	W	2	09	Field Blank 2X40ml 055442, -43, -44
		09:55	OC2	PMW20	W	3	10	Equip Blank 3X40ml 055445, -46, -47
		11:35	OC2	PMW20	W	0	11	@123' 3X40ml clean 055448, -49, -50
↓		13:35	OC2	PMW20	W	0	12	@133' 3X40ml clean 055451, -52, -53
↓		15:30	OC2	PMW20	W	4	13	TRIP 065421??
↓		15:35	OC2	PMW20	W	5	14	@143' 3X40ml ~clean 055450, -51, -52
5/21/06	08:00	OC2	PMW20	W	4	15	TRIP 065361	
	09:15	OC2	PMW20	W	0	16	@153 055453, -54, -55	
	09:15	OC2	PMW20	W	1	17	153-Dup 055456, -57, -58	
	11:32	OC2	PMW20					@163-110 recovery
	13:45	OC2	PMW20					@173' No recovery
	15:47	OC2	PMW20	W	0	18	@183 3X40ml 055459, -60, -61	
	17:35	OC2	PMW20	W	0	19	@195 055462, -63, -64	

PACIFIC SURVEYS

ELECTRIC LOG LATEROLOG 3 GAMMA RAY

Job No.
12550

Company WDC EXPLORATION & WELLS

Well MW-20

File No.

Field SANTA FE SPRINGS

County LOS ANGELES State CA

Location:

GEARY
NORTH OF TELEGRAPH

Other Services:

GR/LL3
CALIPER

Sec.	Twp.	Rge.	Elevation above perm. datum	Elevation K.B. D.F. G.L.
Permanent Datum	G.L.			
Log Measured From	G.L.	0'		
Drilling Measured From	G.L.			

Date	05-22-06		
Run Number	ONE		
Depth Driller	195'		
Depth Logger	194'		
Bottom Logged Interval	194'		
Top Log Interval	20'		
Casing Driller	10 3/4" @ 18'		
Casing Logger	18'		
Bit Size	9 5/8"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	6.5 @ 77F		
Rmf @ Meas. Temp	5.5 @ 77F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEAS		
Rm @ BHT	N/A		
Time Circulation Stopped	1 HOUR		
Time Logger on Bottom	18:15		
Max. Recorded Temperature	N/A		
Equipment Number	PS-2		
Location	L.A.		
Recorded By	LAPORTE		
Witnessed By	R. HALPERN		

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Comments

ELOG Calibration Report

Serial:
Model:

D1
DTQ

Shop Calibration Performed:
 Before Survey Verification Performed:
 After Survey Verification Performed:

Mon May 08 11:28:24 2006
 Tue Nov 01 10:40:07 2005
 Tue Nov 01 10:40:55 2005

Shop Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	8.241	99.640		10.200	102.200	Ohm-m	1.007	1.904
Long	7.417	96.821		10.200	102.200	Ohm-m	1.029	-17.567
IEE	112.580	4730.241	counts	0.123	5.177	A		
VSN	9.477	5293.988	counts	0.181	100.976	V		
VLN	214.205	1417.736	counts	4.086	27.042	V		

Before Survey Verification

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	3.487	99.562		7.493	99.615	Ohm-m	0.959	4.149
Long	459.648	106.407		106.708	106.708	Ohm-m	1.616	-65.206
IEE	100.500	4601.588	counts	0.110	5.036	A		
VSN	3.938	5147.255	counts	0.075	98.178	V		
VLN	129.750	1375.294	counts	2.475	26.232	V		

After Survey Verification

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	3.135	99.567		3.487	99.562	Ohm-m	0.996	0.363
Long	459.914	106.431		106.407	106.407	Ohm-m	0.999	0.049
IEE	100.253	4590.159	counts	0.110	5.023	A		
VSN	3.532	5134.748	counts	0.067	97.939	V		
VLN	129.506	1372.178	counts	2.470	26.173	V		

After Survey Verification compared to Before Survey Calibration

	Zero			Cal		
	Before	After		Before	After	
Short	7.493	3.487	Ohm-m	99.615	99.562	Ohm-m
Long	677.412	459.648	Ohm-m	106.708	106.407	Ohm-m

Gamma Ray Calibration Report

Serial Number: D1
 Tool Model: ELOG
 Performed: Mon May 08 11:27:22 2006

Calibrator Value: 162 GAPI

Background Reading: 167.616 cps
 Calibrator Reading: 722.887 cps

Sensitivity: 0.291746 GAPI/cps

Database File: 12550.db
 Dataset Pathname: WDC/MW20/run1/ELOG
 Presentation Format: ELOG2
 Dataset Creation: Mon May 22 18:07:20 2006 by Log 6.0
 Charted by: Depth in Feet scaled 1:240

-100	S.P. (mV)	0	0	RSN (Ohm-m)	50	0	RLL3 (Ohm-m)	50
40	Gamma Ray (GAPI)	90	0	RLN (Ohm-m)	50	50	RLL3 X10 (Ohm-m)	500

0	RMF (Ohm-m)	50
50	RSN X10 (Ohm-m)	500
50	RLN X10 (Ohm-m)	500

Surface Casing

50

100

150

RMF

GR

S.P.

RLN

RLL3

RSN

-100	S.P. (mV)	0
40	Gamma Ray (GAPI)	90

0	RSN (Ohm-m)	50
0	RLN (Ohm-m)	50
0	RMF (Ohm-m)	50
50	RSN X10 (Ohm-m)	500

0	RLL3 (Ohm-m)	50
50	RLL3 X10 (Ohm-m)	500

50 RLN X10 (Ohm-m) 500

PACIFIC SURVEYS

LATEROLOG 3 GAMMA RAY

Job No.
12550

Company WDC EXPLORATION & WELLS

Well MW-20

File No.

Field SANTA FE SPRINGS

County LOS ANGELES State CA

Location:

GEARY
NORTH OF TELEGRAPH

Other Services:

GR/ELOG
CALIPER

Sec.

Twp.

Rge.

Permanent Datum

G.L.

Elevation

above perm. datum

Elevation

Log Measured From

G.L.

0'

Drilling Measured From

G.L.

K.B.
D.F.
G.L.

Date

05-22-06

Run Number

ONE

Depth Driller

195'

Depth Logger

194'

Bottom Logged Interval

194'

Top Log Interval

20'

Casing Driller

10 3/4" @ 18'

Casing Logger

18'

Bit Size

9 5/8"

Type Fluid in Hole

BENTONITE

Density / Viscosity

N/A

pH / Fluid Loss

N/A

Source of Sample

PIT

Rm @ Meas. Temp

6.5 @ 77F

Rmf @ Meas. Temp

5.5 @ 77F

Rmc @ Meas. Temp

N/A

Source of Rmf / Rmc

MEAS

Rm @ BHT

N/A

Time Circulation Stopped

1 HOUR

Time Logger on Bottom

18:15

Max. Recorded Temperature

N/A

Equipment Number

PS-2

Location

L.A.

Recorded By

LAPORTE

Witnessed By

R. HALPERN

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Comments

Gamma Ray Calibration Report

Serial Number:
Tool Model:
Performed:

13

GROH

Mon May 08 11:30:05 2006

Calibrator Value:	192	GAPI
Background Reading:	31.1611	
Calibrator Reading:	205.072	
Sensitivity:	0.931511	GAPI/

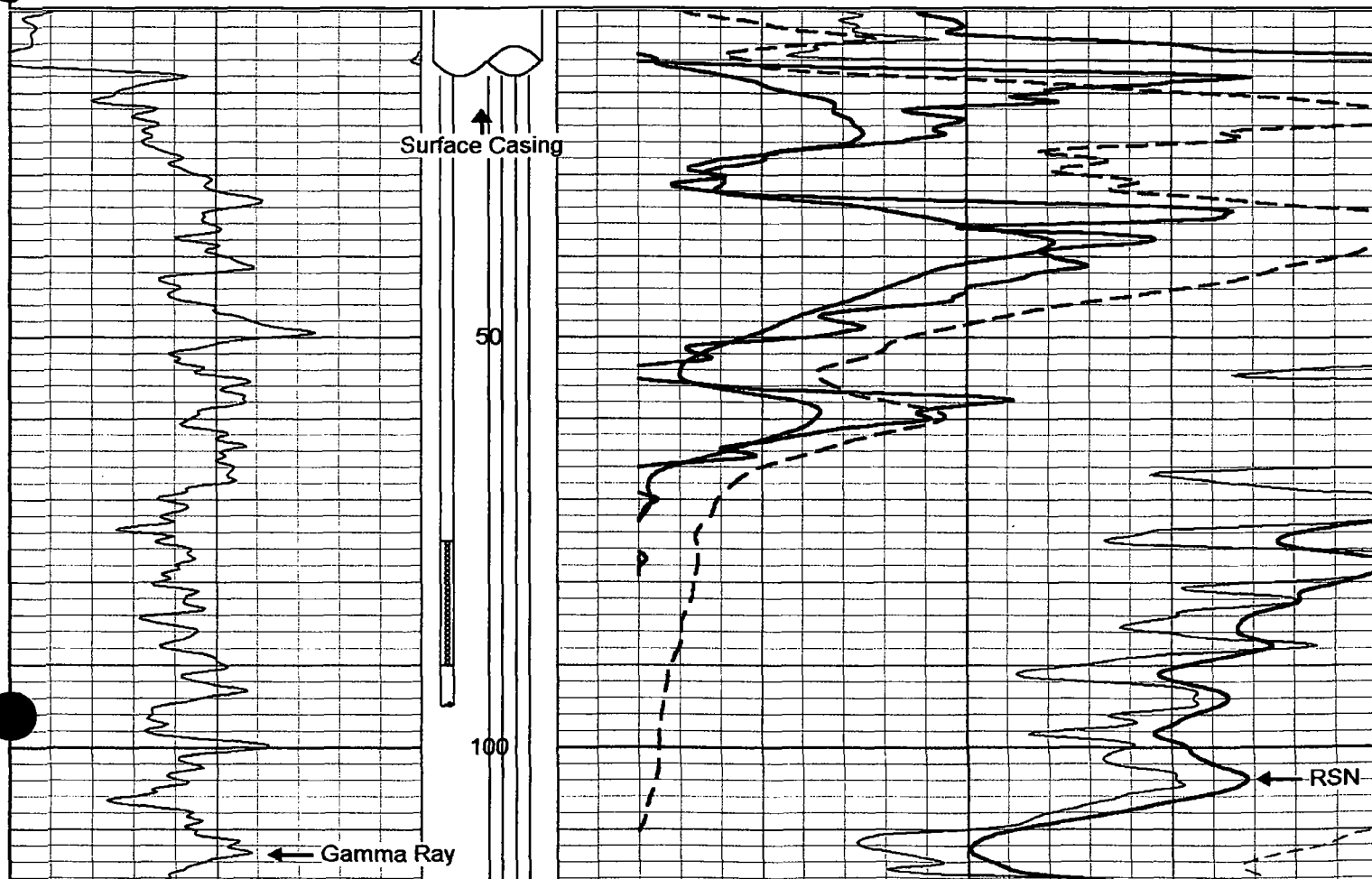
Simplec Long Guard Calibration Report

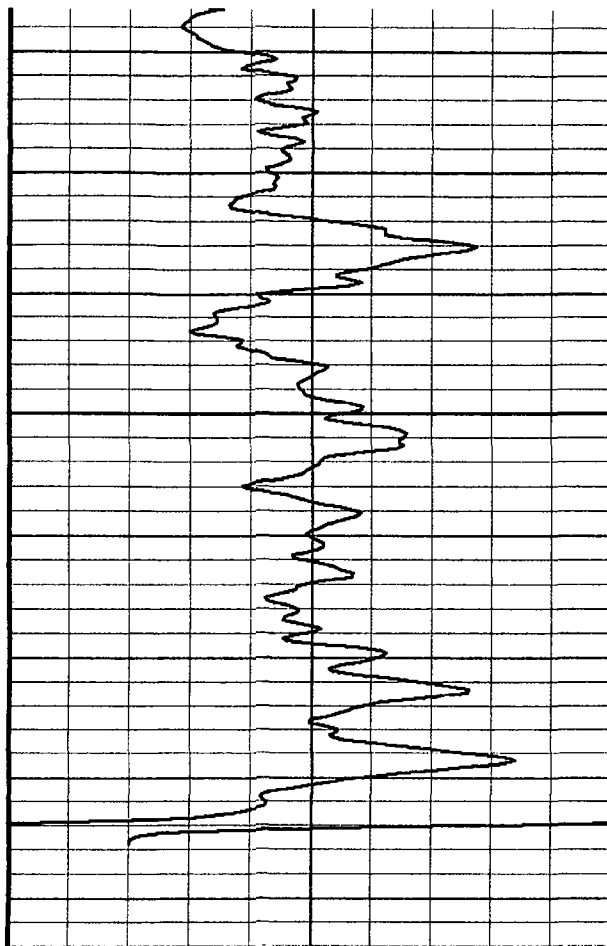
Serial Number:	81
Tool Model:	M&W
Performed:	Mon May 08 11:29:51 2006

System Reading	Calibration Reference
0.310	2.500 Ohm-m
0.628	5.000
6.054	50.000
28.969	250.000
56.732	500.000

Database File:	12550.db
Dataset Pathname:	WDC/MW20/run1/LL3F
Presentation Format:	GUARD
Dataset Creation:	Mon May 22 18:52:00 2006
Charted by:	Depth in Feet scaled 1:240

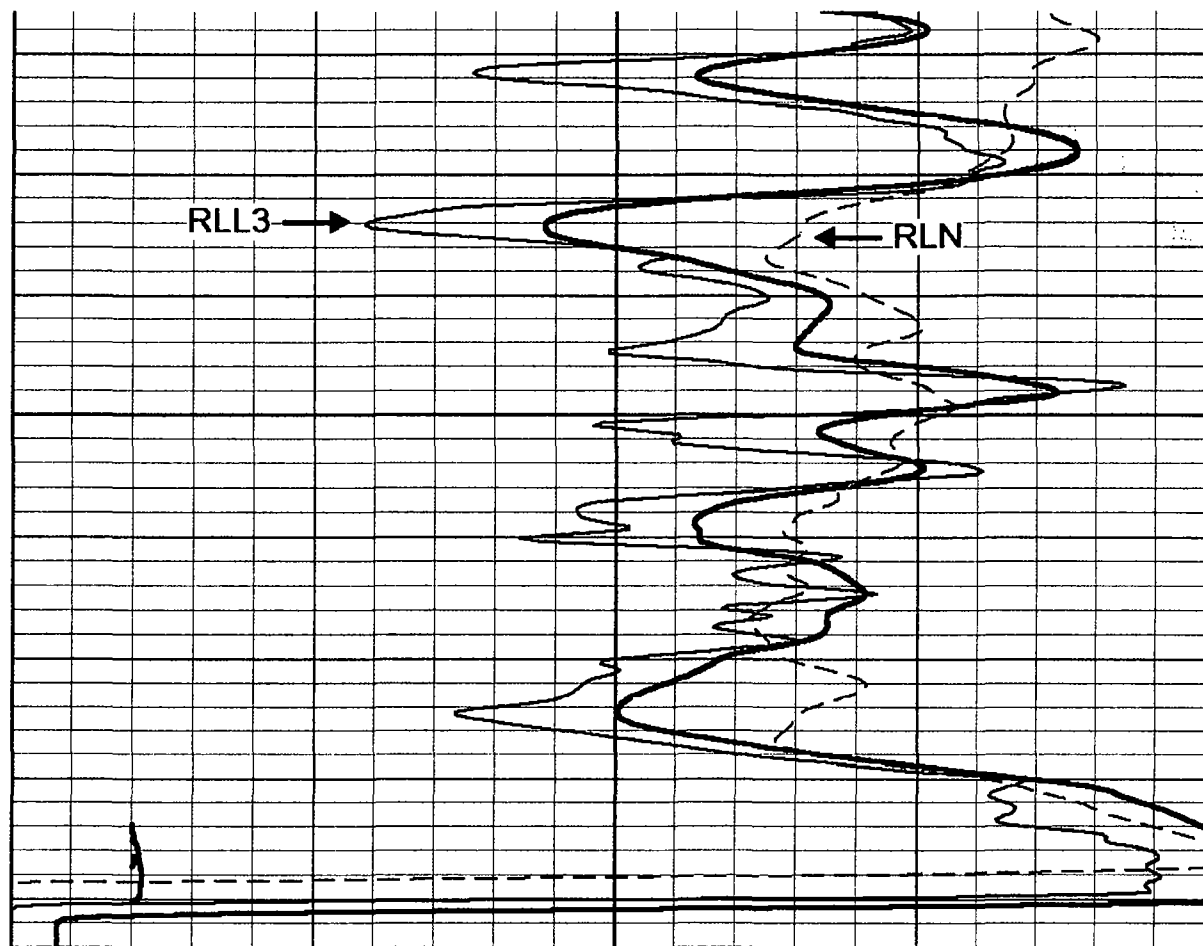
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			0	RSN (Ohm-m)	50
			0	RLN (Ohm-m)	50
			50	RLL3 X10 (Ohm-m)	500
			50	RSN X10 (Ohm-m)	500
			50	RLN X10 (Ohm-m)	500





40 Gamma Ray (GAPI) 90

150



0	RLL3 (Ohm-m)	50
0	RSN (Ohm-m)	50
0	RLN (Ohm-m)	50
50	RLL3 X10 (Ohm-m)	500
50	RSN X10 (Ohm-m)	500
50	RLN X10 (Ohm-m)	500

PACIFIC SURVEYS

CALIPER BOREHOLE VOLUMES

Job No.
12550

Company WDC EXPLORATION & WELLS

Well MW-20

File No.

Field SANTA FE SPRINGS

County LOS ANGELES State CA

Location:

GEARY
NORTH OF TELEGRAPH

Other Services:

GR/ELOG
LL3

Sec.	Twp.	Rge.	Elevation above perm. datum	Elevation
Permanent Datum	G.L.			
Log Measured From	G.L.	0'		K.B. D.F. G.L.
Drilling Measured From	G.L.			

Date	05-22-06		
Run Number	ONE		
Depth Driller	195'		
Depth Logger	194'		
Bottom Logged Interval	194'		
Top Log Interval	0'		
Casing Driller	10 3/4" @ 18'		
Casing Logger	18'		
Bit Size	9 5/8"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	6.5 @ 77F		
Rmf @ Meas. Temp	5.5 @ 77F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEAS		
Rm @ BHT	N/A		
Time Circulation Stopped	1 HOUR		
Time Logger on Bottom	18:15		
Max. Recorded Temperature	N/A		
Equipment Number	PS-2		
Location	L.A.		
Recorded By	LAPORTE		
Witnessed By	R. HALPERN		

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Comments

XY Caliper Calibration Report

Serial Number:
Tool Model:
Performed:

MEDIUM
Comprobe
Mon May 22 17:40:33 2006

Small Ring:
Large Ring:

14.5
24.5

in
in

X Caliper

Y Caliper

Reading with Small Ring:
Reading with Large Ring:

1191.6
1718.6

1191.6
1718.6
cps
cps

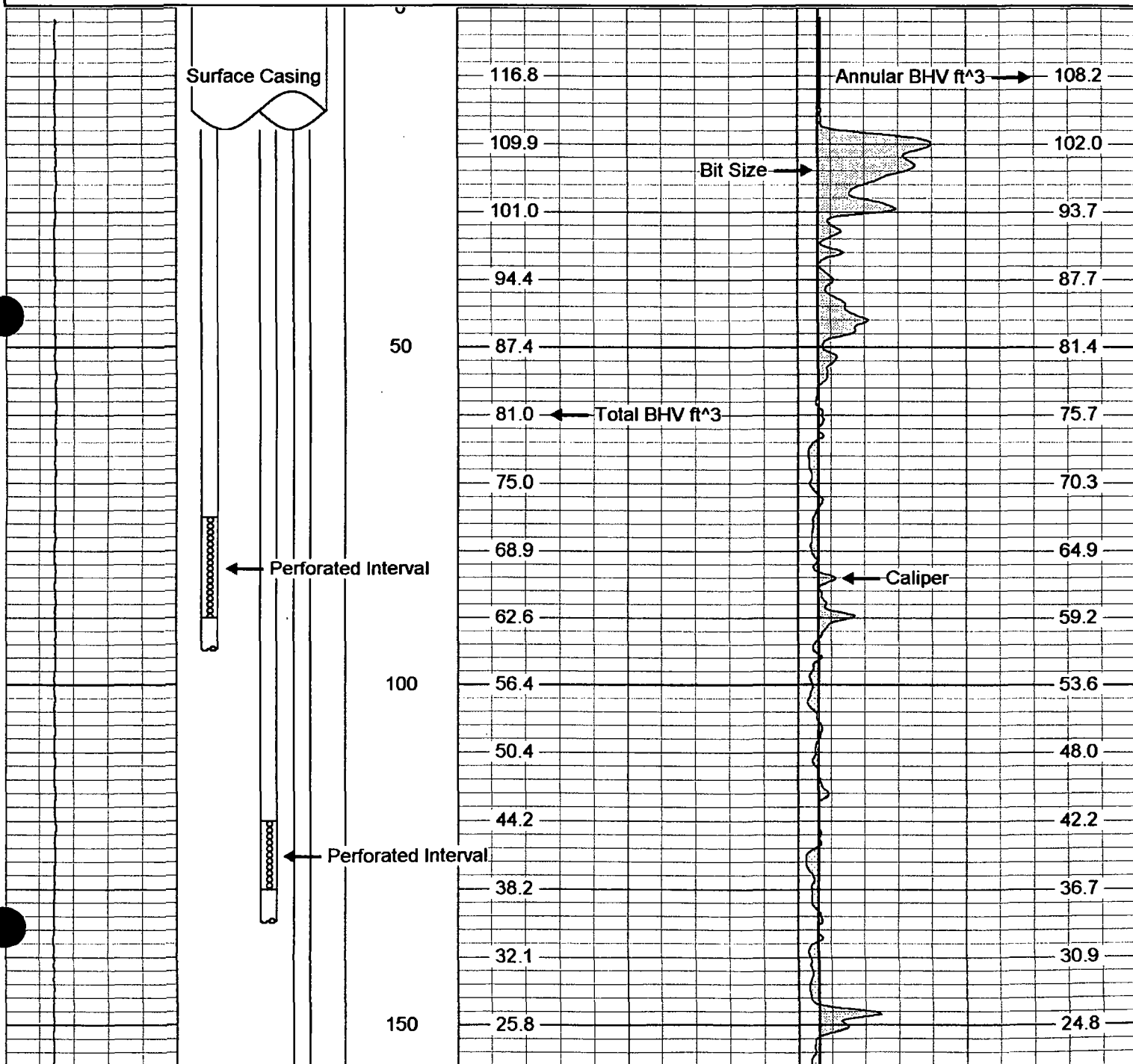
Gain:
Offset:

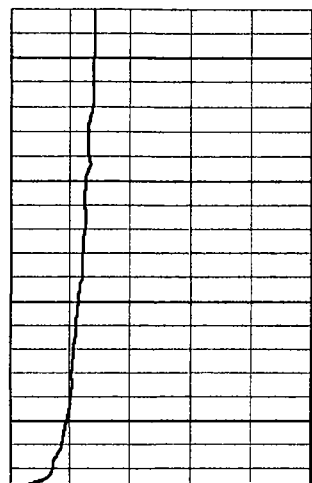
0.0189753
-8.11101

0.0189753
-8.11101

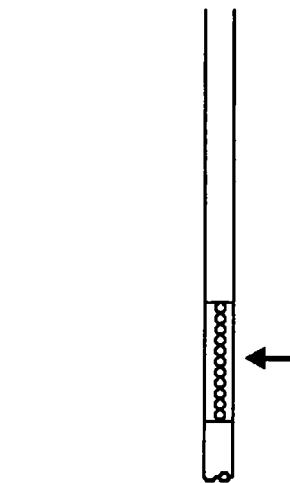
Database File: 12550.db
Dataset Pathname: WDC/MW20/run1/LL4.1
Presentation Format: XYZ
Dataset Creation: Mon May 22 19:00:46 2006 by Calc 6.0
Charted by: Depth in Feet scaled 1:240

0 LSPD (ft/min)00	CSG SCHDL (ft)	0	Caliper (in)	20
		0	BIT SIZE (in)	20



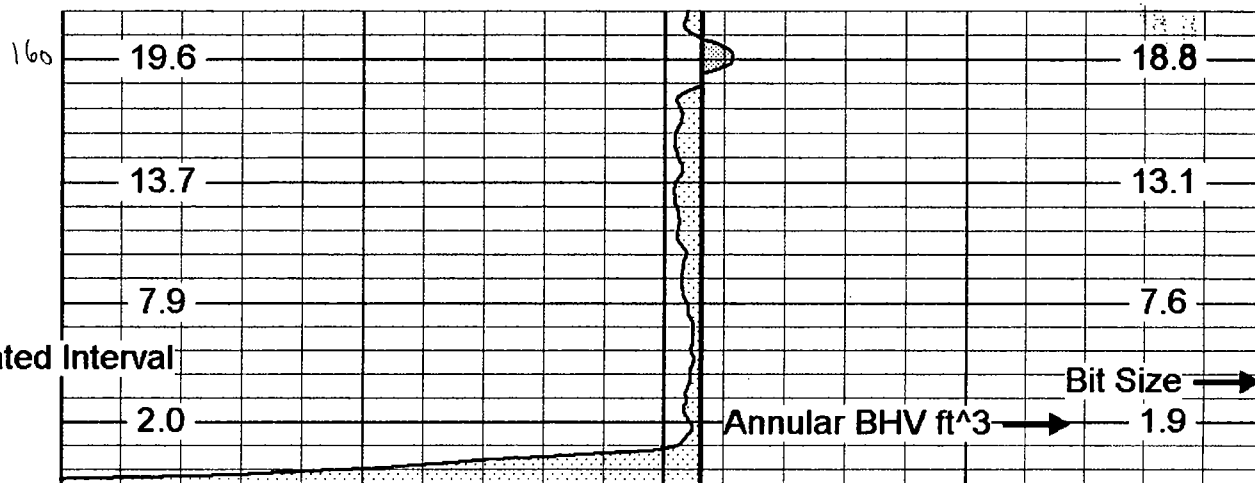


0 LSPD (ft/min)00



CSG SCHDL (ft)

← Perforated Interval



0 Caliper (in) 20

0 BIT SIZE (in) 20

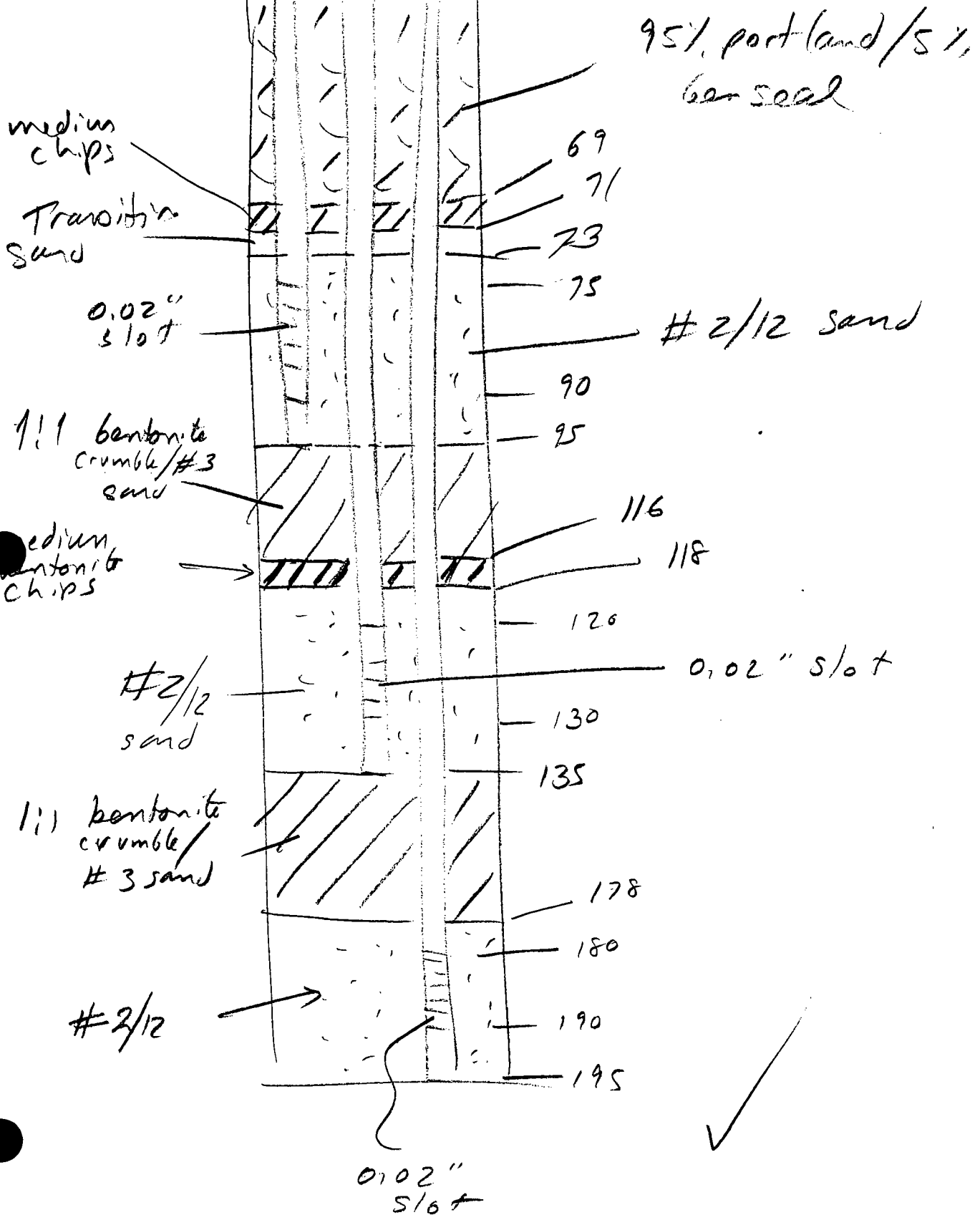
Annular BHV ft³ → Bit Size →

MW 20

Field Personnel _____

[illegible]

Locking Traffic box



**ARCADIS**

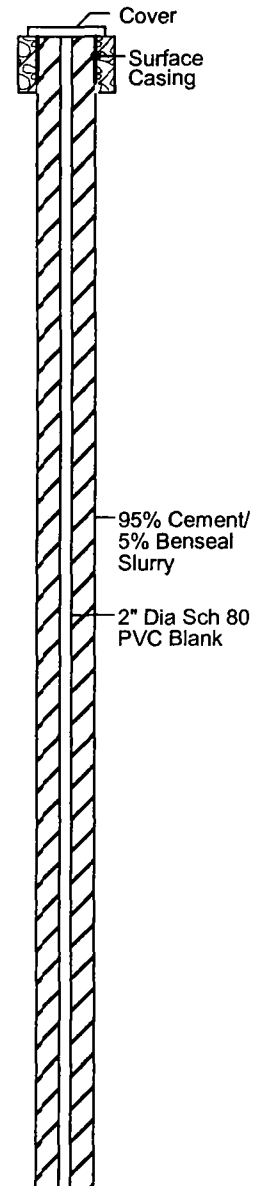
Infrastructure, environment, facilities

LOG OF BORING MW21

(Page 1 of 4)

Omega Chemical Operable Unit 2
Project No. CA000646.0001Date Completed : May 1, 2006
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Sonic SpeedStar 15KOVA : MiniRae
Driller : Rivera
Sampling Method : Core/Simulprobe
Diameter : 6"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
0									Grass surface to ~6".
									(0.5-3'): SAND and SAND with SILT; ~5-10% silt, 90-95% fine to medium sand, gray (5Y 5/1), moist, strong petroleum odor.
									(3-3.5'): Asphaltic layer, possibly remnant of oil field road (extensive laterally).
									SAND - same as above, crude petroleum odor.
5							SP-SM		
10						>4000			
						>4000	ML		(12.5-13.5'): SILT, soft, black (5Y 2.5/1), wet, strong petroleum odor, ~3-5% organic (wood chips) debris. (Fill ?).
15							SP-SM		(13.5-15'): Poorly graded SAND with Silt, ~5-10% silt, 90-95% fine to medium sand, gray (5Y 5/1), moist, petroleum odor.
						>4000	ML		(15-17'): SILT, soft, black (5Y 2.5/1), wet, low to moderate odor, peat and wood chips ~16.75 ft. (Fill ?).
20				10:30		50			(17-25'): Well graded SAND with Gravel, ~70% fine to coarse sand, subrounded, ~30% fine and coarse subrounded igneous gravel (max 60 mm diameter), dark yellow brown (10YR 3/6), moist.
							SW		
25									

Well: MW21
Elev.: 128.91DESCRIPTION OF BORING LOCATION: On west side of Pioneer Blvd., in green belt in front of 9929
Pioneer Blvd., ~4 feet from curb.

NOTES: Depth in feet below ground surface (bgs). Elevation = finished surface.

LOG OF BORING MW21

(Page 2 of 4)

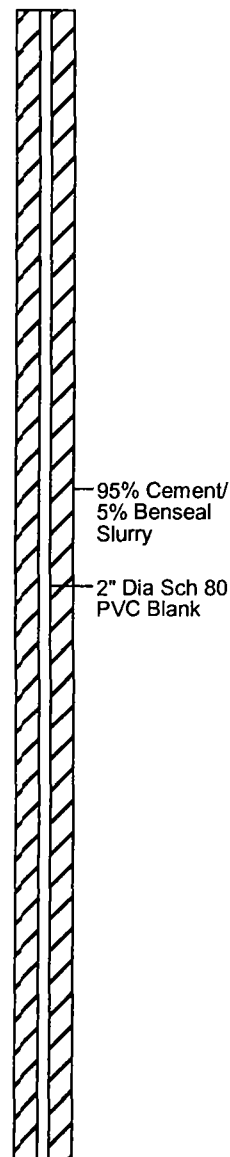
Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 1, 2006
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Sonic SpeedStar 15K

OVA : MiniRae
Driller : Rivera
Sampling Method : Core/Simulprobe
Diameter : 6"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
25									(~25-36'): Well graded SAND with SILT, ~5% fine subangular gravel (max 15 mm diameter), ~15% silt, ~80% fine to coarse sand, (maximum 5 mm diameter), subangular, cemented, hard, light olive brown (2.5Y 5/4), dry.	
30							SW-SM			
35							SW		(36-38'): Well graded SAND with Gravel, ~20% predominantly fine subangular, igneous gravel (max 8 mm diameter), ~80% fine to coarse sand (max 5 mm diameter), subangular, olive brown (2.5Y 4/3), dry.	
40				11:10			CL-CH		(38-40'): Fat CLAY, medium stiff, olive brown (2.5Y 4/3), moist to wet, some black organic staining (crude?), positive ribbon test, moderate toughness, no dilatancy, high plasticity, high dry strength.	
45							SP		(40-48'): Poorly graded SAND, fine-grained, trace Silt, light olive brown (2.5Y 5/3), slightly moist.	
50							SW		(48-49.5'): Cemented, well graded SAND with Gravel, ~5% Silt, 85% fine to coarse sand, ~10% fine subangular igneous gravel, hard, light olive brown (2.5Y 5/6), slightly moist, no odor.	
							ML-SM			

Well: MW21
Elev.: 128.91



DESCRIPTION OF BORING LOCATION: On west side of Pioneer Blvd., in green belt in front of 9929 Pioneer Blvd., ~4 feet from curb.

NOTES: Depth in feet below ground surface (bgs). Elevation = finished surface.

**ARCADIS**

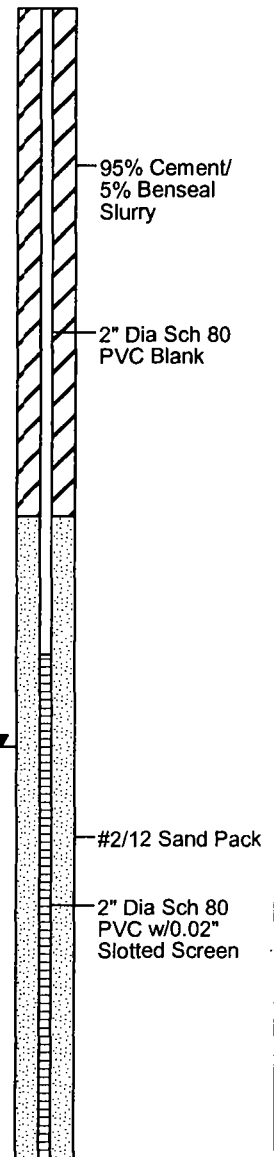
Infrastructure, environment, facilities

LOG OF BORING MW21

(Page 3 of 4)

Omega Chemical Operable Unit 2
Project No. CA000646.0001Date Completed : May 1, 2006
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Sonic SpeedStar 15KOVA : MiniRae
Driller : Rivera
Sampling Method : Core/Simulprobe
Diameter : 6"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
50				12:50			ML-SM		
							SM		(50.5-52'): Well graded Silty SAND, ~20% silt, 70-75% fine to coarse rounded Sand (max 5 mm diameter), ~10% fine rounded igneous Gravel, dense, olive brown (2.5Y 4/3), wet (due to cleanout water), w/black org staining (no odor)
							SP		
55							CL		(52-54'): Poorly graded SAND, ~3-5% fine and coarse subrounded igneous Gravel (max 70 mm diameter), brown (7.5YR 5/4), dry.
							ML-SP		(54-56'): Interbedded CLAY and CLAYEY SAND (with iron staining), clay stiff (<1/4" penetration).
							SP		(56-57'): SILT/Poorly graded SAND. (57-58'): Poorly graded SAND, fine to medium grained (maximum 1 mm diameter) brown.
60									
65									
				15:00					
				5/1/06			SW		(68-69' Split Spoon): Well graded SAND, ~3-5% silt, 95-97% fine to coarse sand (maximum 5 mm diameter), subrounded, dense, yellowish brown (10YR 5/4), wet, occasional subangular to subrounded igneous fine and coarse gravel (maximum 28 mm diameter).
70			OC2-PMW21 W-0-03	8:15			SP		(69-76'): Poorly graded SAND, ~3-5% subangular to subrounded, igneous, fine to coarse gravel (maximum 50 mm diameter), 95-97% fine to medium sand (maximum 1.5 mm diameter), yellow brown (10YR 5/4), wet.
75									

Well: MW21
Elev.: 128.91DESCRIPTION OF BORING LOCATION: On west side of Pioneer Blvd., in green belt in front of 9929
Pioneer Blvd., ~4 feet from curb.

NOTES: Depth in feet below ground surface (bgs). Elevation = finished surface.

LOG OF BORING MW21

(Page 4 of 4)

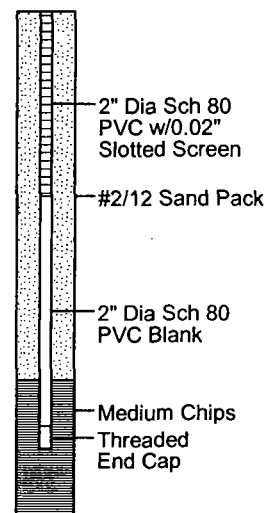
Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 1, 2006
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Sonic SpeedStar 15K

OVA : MiniRae
Driller : Rivera
Sampling Method : Core/Simulprobe
Diameter : 6"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
75			OC2-PMW21 W-0-03	8:15					
							SP		
			OC2-PMW21 W-0-05	9:55			SW		(76-78.5'): Well graded SAND with Gravel, ~3-5% Silt, ~15-20% fine subrounded (granitic) gravel (max 8 mm diameter), ~75-80% fine to coarse sand, grayish brown (10YR 5/2), wet.
80							SP		(78.5-81'): Poorly graded SAND, fine grained (maximum 0.5 mm), olive brown (2.5Y 4/3), wet.
							ML		(81-85.5'): Non plastic SILT, medium stiff, light olive brown (2.5Y 5/4), moist, low to toughness, low plasticity, moderate dilatancy, low dry strength.
85							SP-SM		(85.5-86'): Poorly graded SAND with Silt, ~5-10% Silt, ~90-95% predominantly fine sand, with ~3-5% medium grained (maximum 2 mm diameter), occasional fine gravel (maximum 6 mm diameter), olive brown (2.5Y 5/4), moist.
90									Bottom of boring at 86'.
95									
100									

Well: MW21
Elev.: 128.91



DESCRIPTION OF BORING LOCATION: On west side of Pioneer Blvd., in green belt in front of 9929 Pioneer Blvd., ~4 feet from curb.

NOTES: Depth in feet below ground surface (bgs). Elevation = finished surface.

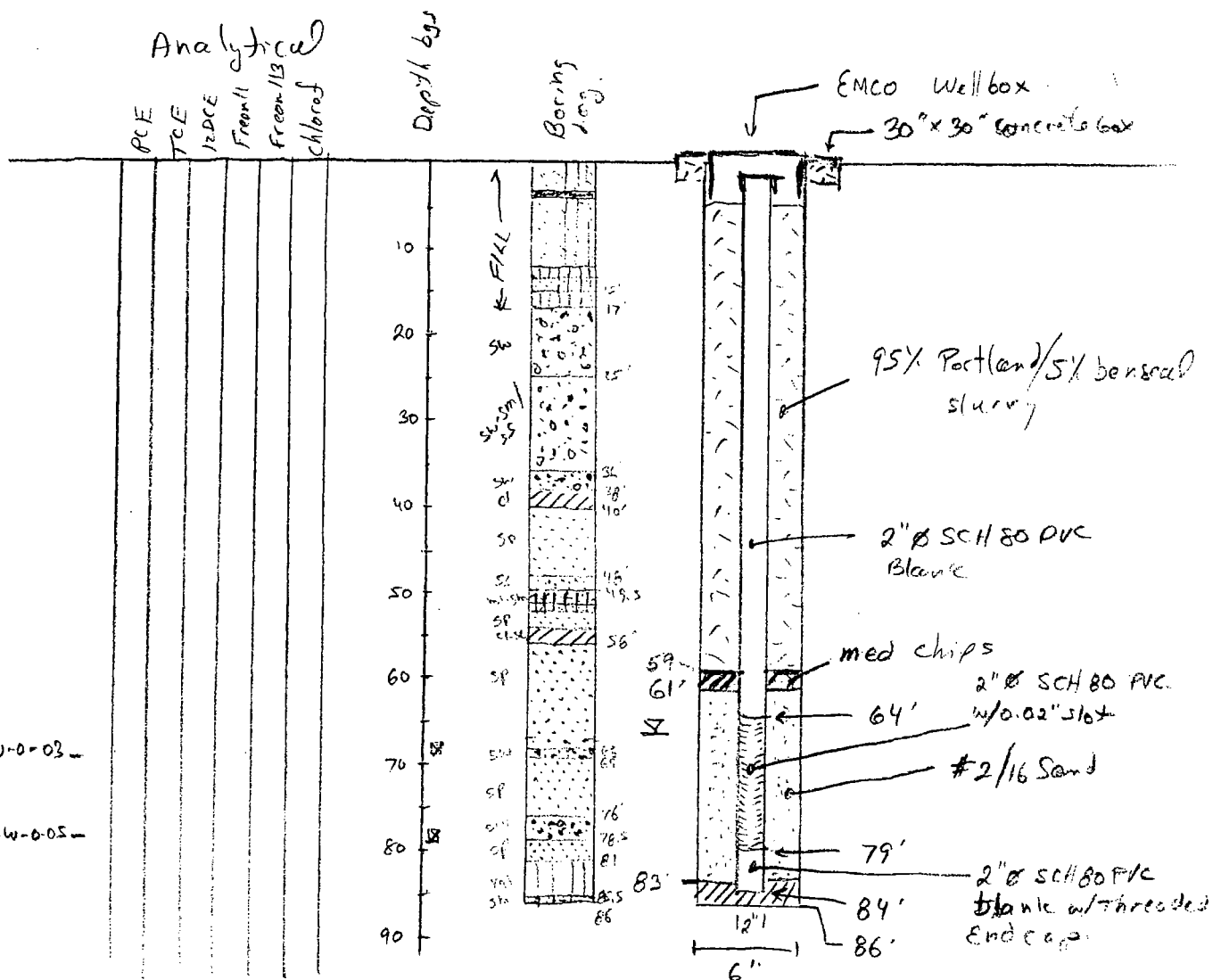
SAMPLE IDENTIFICATION LOG

[illegible]

Content ver. 1.0

065374
056340, -39, -38
056335, -36, -37
056350, -35, -34
056347, -48, -49

03 glass jar
wiped over
802 J- no
over



	PCE	TCE	1,2-DCE	Freon 11	Freon 113	chloroform	Dibromo chloro methane	Freon 12	Other
OC2-PMW21-W-0-03	1.8	<0.5	<0.5	10.5	<0.5	<0.5	<0.5	<0.5	0.0
OC2-PMW21-W-0-05	1.7		1.1	0.83	0.57	2.3	1.6		2.7, 1.1, 0.0, 0.0, 0.0
OC2-PMW21-W-4-01 (Trip)									
(Field Blank) 2-02									
(Eq. Blank) 3-04									

LOG OF BORING MW-22

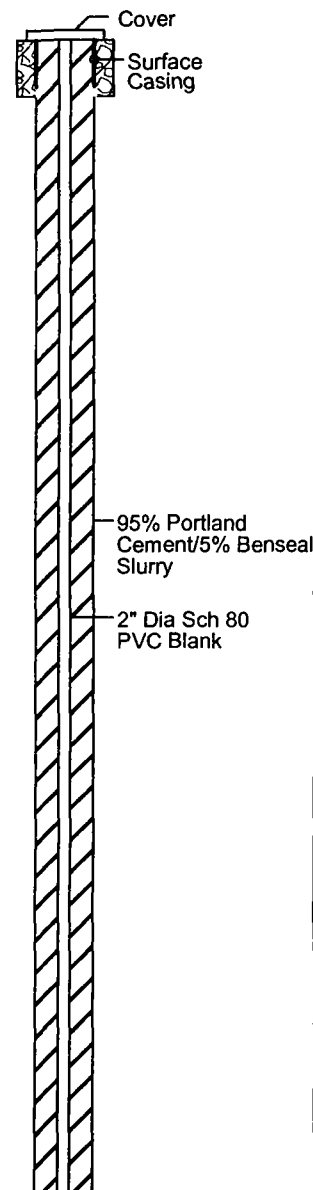
(Page 1 of 4)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed	: April 27, 2006	OVA	: MiniRae
Logged By	: Ronald Halpern	Driller	:
Checked By	: Ronald Halpern	Drilling Method	: Sonic
Drilling Company	: WDC	Diameter	: 6"
Drill Rig	: Sonic SpeedStar 15K	Calibration Gas/Conc	: 100 ppm isobutylene

Depth in Feet	Samples	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
0								Sod to ~6".
			4/24/06			SM		SILTY SAND, ~20-30% silt, ~70-80% fine sand, soft, brown to reddish brown, wet, rootlets (Fill).
5			4/25/06 9:40			SM-SC		Post hole to 5 ft. SILTY SAND with CLAY, CLAYEY SAND with SILT, ~60-80% fine Sand, ~20-40% silt and clay, medium stiff, dark brown (10YR 8/2), moist.
			9:55					Same as above.
10						SP		(10-10.67') Poorly graded SAND, fine-grained (max. 0.5 mm diameter), dark yellowish brown (10YR 4/6), slightly moist.
						ML		(10.67-12.5') Non plastic SILT, medium stiff, friable, olive brown (2.5Y 4/4), moist.
						SP		(12.5-14') Poorly graded SAND, fine-grained, yellowish brown (10YR 5/4), moist.
15			10:10			ML		(14-14.67') SILT, stiff to hard, olive brown (2.5Y 4/4), slightly moist, low to medium toughness, low to medium plasticity, low dry strength.
						SP-SM		
						ML		
						SP		(14.67-15') Poorly graded SILTY SAND, SAND with SILT, ~10-20% silt, 80-90% fine sand, (max. 0.5 mm diameter), olive brown (2.5Y 4/3), slightly moist.
20			11:00			SM		(15-15.3') SILT with CLAY, hard, slightly moist, brown (10YR 4/3), mottled with oxidation stains, low toughness, medium plasticity, low dry strength, and yellowish brown, horizontal lamina.
								(15.3-16.3') Poorly graded SAND, fine to medium grained, (max 1 mm diameter), light olive brown (2.5Y 5/4), slightly moist.
25						SP		(16.3-16.7') Poorly graded SILTY SAND, ~20-30% silt, 80-90% fine to low end medium sand (max 1 mm diameter) hard, friable, (semiconsolidated) brown (10YR 4/3), slightly moist, mottled with oxidation stains.

Well: MW-22
Elev.: 151.36



DESCRIPTION OF BORING LOCATION: On east side of Arlee, just north of Terradell, ~3 1/2 ft. in from curb.

NOTES: Depth in feet below ground surface (bgs). Elevation noted is ground surface/finished surface.

LOG OF BORING MW-22

(Page 2 of 4)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed	: April 27, 2006	OVA	: MiniRae
Logged By	: Ronald Halpern	Driller	:
Checked By	: Ronald Halpern	Drilling Method	: Sonic
Drilling Company	: WDC	Diameter	: 6"
Drill Rig	: Sonic SpeedStar 15K	Calibration Gas/Conc	: 100 ppm isobutylene

Depth in Feet	Samples	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
25						SP		(23-26') Poorly graded SAND, fine (max 0.3 mm diameter), light olive brown (2.5Y 5/3), slightly moist, trace fine and coarse gravel size rounded, nodules consolidated sand.	
						SP-ML			
						SP-SM		(26-26.5') Poorly graded SAND/SILT; very fine sand bordering silt, olive brown, hard, slightly moist, consolidated.	
			11:00			SM-SS		(26.5-29') Well graded SAND with GRAVEL, ~3-5% silt, ~25% fine and coarse gravel (sedimentary) ~70% well-graded fine to coarse sand (max 5 mm diameter), light olive gray (5Y 6/2), slightly moist.	
30						SW		(29-30') Poorly graded SILTY SAND, ~20-30% silt, ~10-15% med-coarse sand, ~55-70% fine sand consolidated, hard, dark grayish brown (2.5Y 4/2), moist, trace fine gravel (3-5%).	
						SW-SM			
35						SP		(30-33') Well graded SAND with GRAVEL, ~60-70% fine to coarse sand (max 5 mm diameter), subangular, ~30-40% fine and coarse subrounded to subangular gravel (max 60 mm diameter), light yellowish brown (2.5Y 6/3), slightly moist, gravel igneous to wet.	
			11:55			SW-SM		(33-34') Well graded SAND with SILT and GRAVEL, ~5-10% silt, ~60% fine to coarse sand (max 5 mm diameter), ~30% fine and coarse subangular to angular gravel (max 30 mm diameter), light brownish gray (2.5Y 6/2), slightly moist, gravel is consolidated sedimentary (Sand and Silty Sand).	
40								(34-38.5') Poorly graded SAND, predominantly fine to medium (max 2 mm diameter) sand, ~5-10% coarse sand, 3-5% fine subrounded gravel, light olive brown, slightly moist.	
						SP		(38.5-43') Well graded SAND with GRAVEL, fragmented sand stone, ~5-10% silt, ~50% fine to coarse sand (max 5 mm diameter), ~40% fine gravel size subangular to angular rock chips (sedimentary).	
45			13:10			SW		(43-47.5') Poorly graded SAND, ~5-10% subrounded fine and coarse gravel (igneous and metamorphic), ~90-95% fine to medium sand, slightly moist, increasing grain size to coarse like gravel.	
50									

Well: MW-22
Elev.: 151.36

95% Portland Cement/5% Benseal Slurry
2" Dia Sch 80 PVC Blank

DESCRIPTION OF BORING LOCATION: On east side of Arlee, just north of Terradell, ~3 1/2 ft. in from curb.

NOTES: Depth in feet below ground surface (bgs). Elevation noted is ground surface/finished surface.

LOG OF BORING MW-22

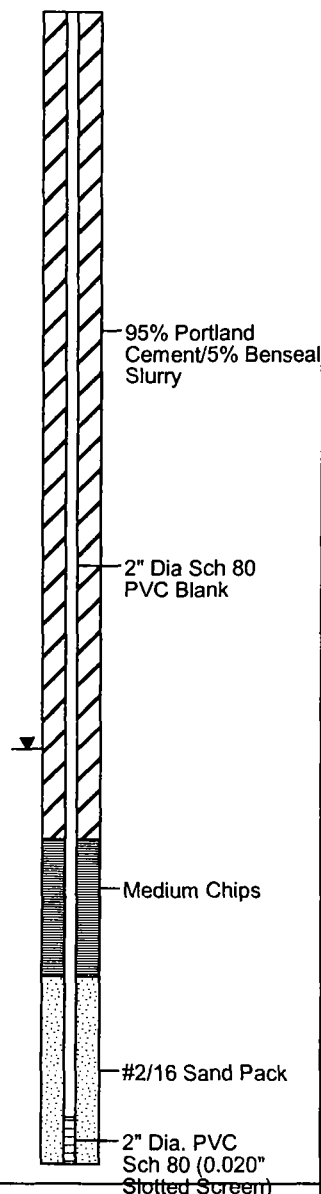
(Page 3 of 4)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : April 27, 2006
Logged By : Ronald Halpern
Checked By : Ronald Halpern
Drilling Company : WDC
Drill Rig : Sonic SpeedStar 15K

OVA : MiniRae
Driller :
Drilling Method : Sonic
Diameter : 6"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	Well: MW-22 Elev.: 151.36
50			13:10			SW		(47.5-53.5') Well graded SAND with GRAVEL, ~20-30% subangular to subrounded igneous gravel (max 40 mm diameter), ~70-80% fine to coarse sand (max 5 mm diameter), light yellowish brown (2.5Y 6/4), slightly moist. Same as above, light gray (2.5Y 7/2), Gravel fine to coarse (max 20 mm diameter).	
55			15:05			ML		(54.5-55.5') Non plastic SILT with SAND - SANDY SILT, ~25-35% med-coarse sand (max 5 mm diameter), ~65-75% silt, hard, yellowish brown (10YR 5/4), moist, consolidated, trace fine angular gravel.	
						SP		(56-57') Poorly graded SAND, predominantly fine to medium grained, hard, (consolidated), pale olive (5Y 6/3), moist.	
						SP-SM/SW-SM		(57-60') Poorly to well graded SAND with SILT, ~5-10% silt, 50-60% fine sand, ~30-40% coarse sand (max 5 mm diameter), pale olive (5Y 6/3), slightly moist.	
60						ML		(60-61') SILT with SAND, ~15-20% medium to coarse sand (max 5 mm diameter), trace fine gravel (max 8 mm diameter), ~80-85% silt borderline v. fine sand, light olive brown (2.5Y 5/4), dry, occasional coarse gravel (to 30 mm diameter).	
						SW-SM		(61-63') Well graded SAND with SILT, ~5-10% fine subrounded igneous gravel (max 8 mm diameter), ~10-20% silt, ~70-85% fine to coarse sand; light yellowish brown (2.5Y 6/3), dry, increasing gravel to ~15% by 62.5 feet, gets moist to wet by 64 feet, consolidated.	
65						SW		Poorly graded SILTY SAND, ~20% silt, 80% fine sand, hard (fragmented), brown, wet at 66 feet.	
		OC2-PMW22 W-0-04	4/26/06 10:42					(66-76') Poorly graded SAND, fine to medium (max 1 mm diameter), dark olive brown (2.5Y 3/3), wet, occasional coarse gravel (subrounded gneiss and/or igneous max 60 mm), micaceous sand with biotite and mafic minerals.	
		OC2-PMW22 W-1-05	10:43			SP			
70			11:30						
75									



DESCRIPTION OF BORING LOCATION: On east side of Arlee, just north of Terradell, ~3 1/2 ft. in from curb.

NOTES: Depth in feet below ground surface (bgs). Elevation noted is ground surface/finished surface.

LOG OF BORING MW-22

(Page 4 of 4)

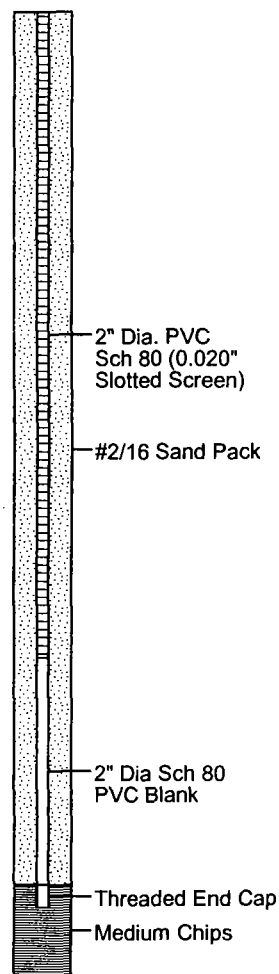
Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : April 27, 2006
Logged By : Ronald Halpern
Checked By : Ronald Halpern
Drilling Company : WDC
Drill Rig : Sonic SpeedStar 15K

OVA : MiniRae
Driller :
Drilling Method : Sonic
Diameter : 6"
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
75								
		OC2-PMW22 w-0-06	13:40					(76-88') Same as above - increasing grain size - predominantly, fine to medium (0.1 to 2 mm), occasional coarse sand (up to 4 mm diameter), occasional coarse subrounded igneous Gravel (max 30 mm diameter).
80						SP		
			15:00					
		OC2-PMW22 W-0-07	16:40					
			4/27/06			ML		(88-88.5') Non plastic SILT, stiff, light olive brown, moist.
90						SP		(88.5-91') Poorly graded SAND, fine to medium (max 2 mm diameter).
			9:00			ML-SM		(91-92') SILT borderline SILTY SAND v. fine Sand <0.1 mm with ~5-10% ~0.1-0.2 mm diameter sand, hard, olive brown, moist to wet, laminar black (organic?) layers, horizontal separation.
						SP		(92-94') Poorly graded SAND, fine to medium grained (max 2 mm diameter).
95						ML		(94-96') Non plastic SILT, ~3-5% fine sand, ~95-97% silt, medium stiff, friable, olive brown (2.5Y 4/3), moist, horizontal laminations.
100								Bottom of boring at 96'.

Well: MW-22
Elev.: 151.36



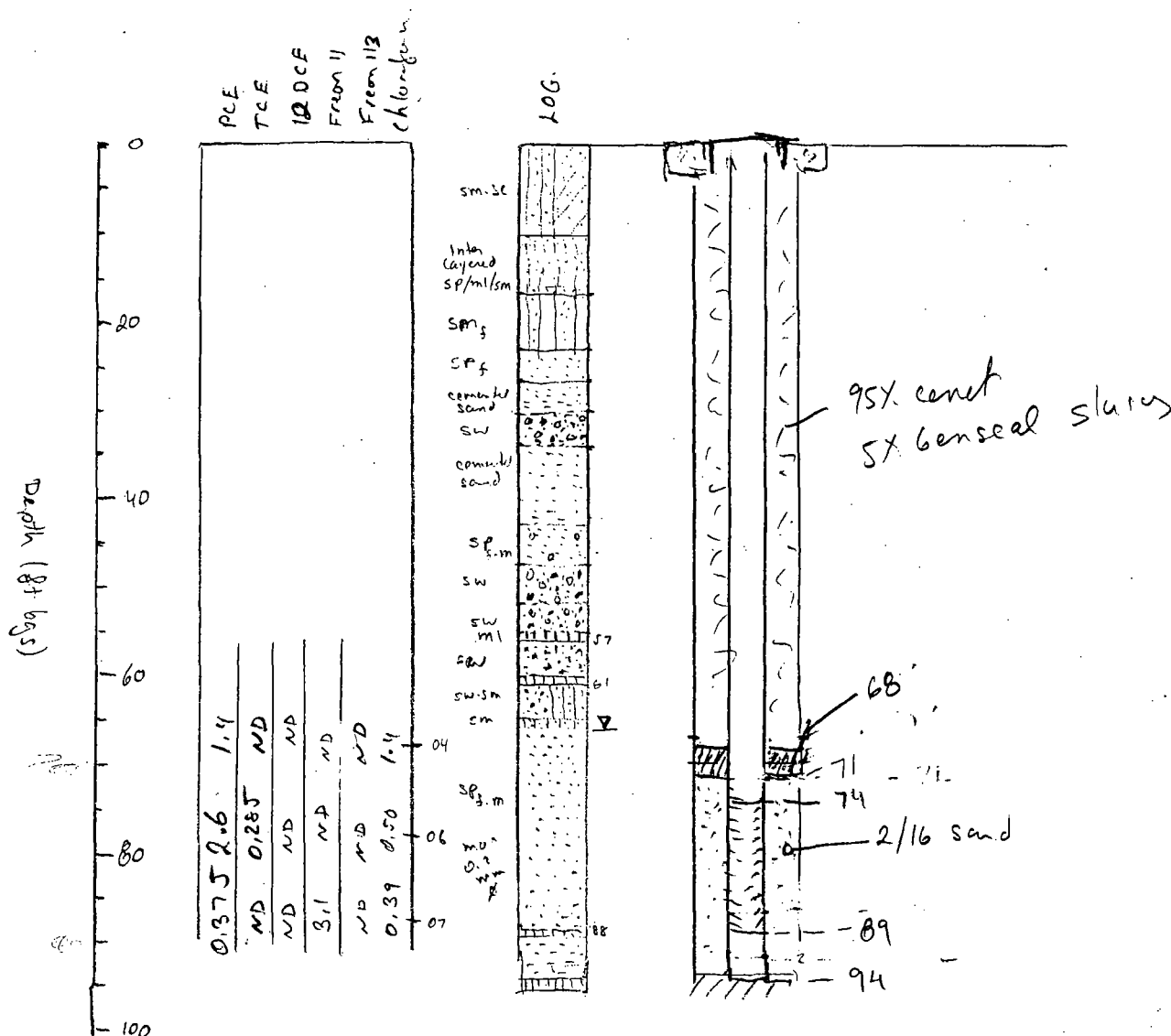
DESCRIPTION OF BORING LOCATION: On east side of Arlee, just north of Terradell, ~3 1/2 ft. in from curb.

NOTES: Depth in feet below ground surface (bgs). Elevation noted is ground surface/finished surface.

containing #

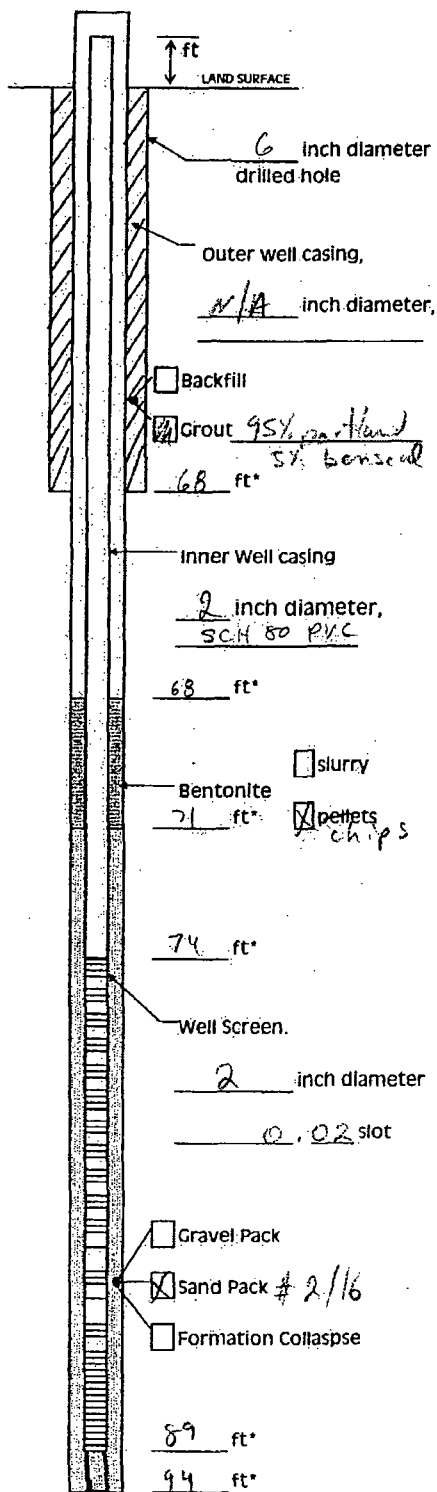
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056318, 056317
056329
036341, 056291
056292
056326, -27, -28
056315, -16
056303

Glass
Glass
Glass @ 70'
Glass @ 88'



- 01 ND Naphthalene 0.235
- 02 ND Methylene Chloride 0.245
- 03 ND
- 04 Chloroform 1.4 PCE 1.4 Naphthalene 10 1,2,4-Trimethylbenzene 0.25
- 05 1,2,4-Trimethylbenzene 0.245 Chloroform 1.4 Naphthalene 12 PCE 1.3
- 06 Chloro 0.150 Naphthalene 7.0 PCE 2.6 TCE 0.285
- 07 Freon 11 3.1 EB 0.35 X 1.485 Naphthalene 0.77 PCE 0.375 TCE <0.5
 Toluene 0.495 Bromodichloromethane 1.3, Bromoform 2.5
 chloroform 0.39

Well Construction Log



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project Omega Chemicals Well PMW22

Town/City Santa Fe Springs

County Los Angeles State CA

Permit No. _____

Land-Surface Elevation and Datum:

_____ feet ☐ Surveyed

☐ Estimated

Installation Date(s) 4/24 - 4/27/06

Drilling Method Sonic

Drilling Contractor WDC

Drilling Fluid NONE

Development Technique(s) and Date(s)

Fluid Loss During Drilling _____ gallons

Water Removed During Development _____ gallons

Static Depth to Water ~6' feet below M.P.

Pumping Depth to Water _____ feet below M.P.

Pumping Duration _____ hours

Yield _____ gpm Date _____

Specific Capacity _____ gpm/ft

Well Purpose

Monitoring Groundwater Quality

Remarks

LOG OF BORING MW23

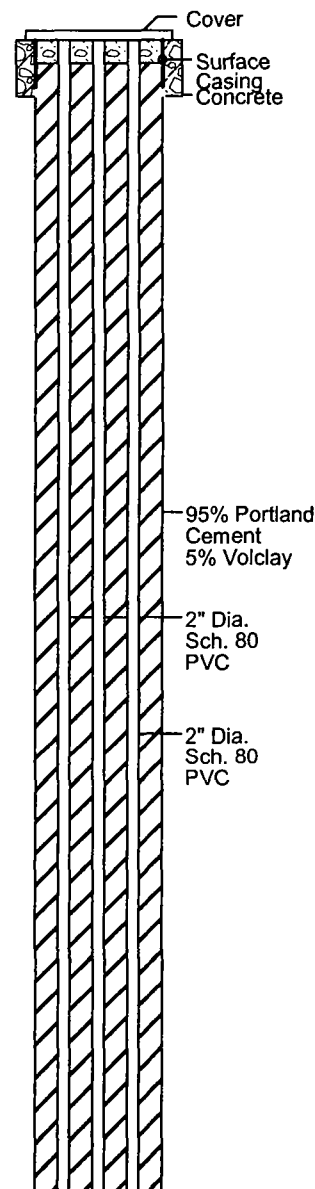
(Page 1 of 8)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 20, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Faline Star SOK-CH ARCH/Mud
OVA : MiniRae
Driller : Mark Green
Sampling Method : Core/Simulprobe
Diameter : 9 3/4 inches
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
0				5/16/05 @ 16:00					Sod
5									
10									
15				16:05	0.2		ML		(Off cyclone cuttings). SILT with Clay; olive brown, wet, very soft, no odor.
20				16:10					(Off cyclone). Same as above.
25									

Well1: MW23B
Well2: MW23C
Well3: MW23D
Elev.: 149.35



In greenbelt on the northeast side of Burke Street, just northwest of Beasor Road (near PPO34).
Elevation noted is finished surface grade. B = Intermediate; C = Lower Intermediate; D = Deep

LOG OF BORING MW23

(Page 2 of 8)

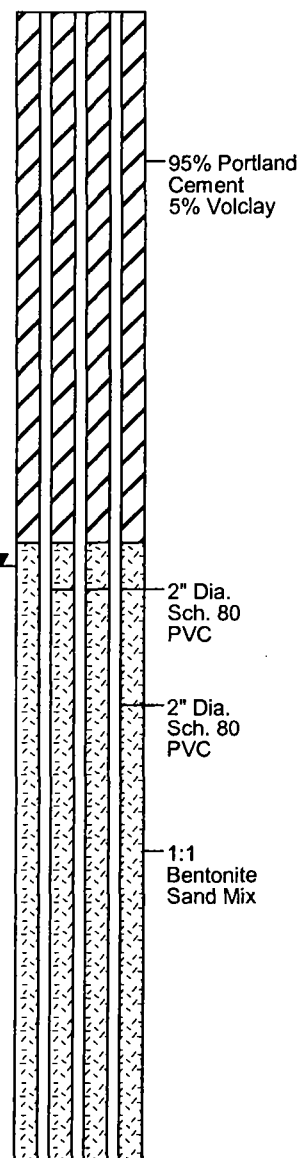
Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 20, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Faline Star SOK-CH ARCH/Mud

OVA : MiniRae
Driller : Mark Green
Sampling Method : Core/Simulprobe
Diameter : 9 3/4 inches
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
25									(Off cyclone). SILTY CLAY, brown (10YR 4/3), moist, soft, no odor; medium tough, moderate plasticity, no dilatency.
30				16:30	0.3		CL		(Off cyclone). Same as above, dark brown to brown.
35				16:33	0.2		SP-SM		(Off cyclone). SAND with Silt; approx. 5-10% brown silt; 90-95% fine-grained sand; dark brown (10YR 3/3), moist, no odor.
40			OC2-PMW23 W-0-03	16:40			SW		(38-40' Off cyclone). Well graded SAND, approx. 2-5% silt; 95-98% fine to coarse sand (max diam. 5 mm), occasional fine gravel (max. diam. 20 mm); brown (10YR 4/4), wet, no odor.
45				5/17/05 7:30			GW		Well graded GRAVEL with Sand; approx. 30% fine to coarse sand, 70% fine and coarse gravel (max. diam. 30 mm), subrounded igneous (granitic) gravel.
50				7:40			SP		

Well1: MW23B
Well2: MW23C
Well3: MW23D
Elev.: 149.35



In greenbelt on the northeast side of Burke Street, just northwest of Beasor Road (near PPO34).
Elevation noted is finished surface grade. B = Intermediate; C = Lower Intermediate; D = Deep

LOG OF BORING MW23

(Page 3 of 8)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 20, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Faline Star SOK-CH ARCH/Mud

OVA : MiniRae
Driller : Mark Green
Sampling Method : Core/Simulprobe
Diameter : 9 3/4 inches
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
50	X		OC2-PMW23 W-0-05	13:20	2.0				(~50' Off cyclone). Poorly graded SAND, ~95-98% fine to medium grained (max. diam. 1 mm), brown, saturated, trace silt, occasional fine and coarse gravel (max. 35 mm diam).	
55							SP		(From Simulprobe): Poorly graded SAND with Gravel; ~30% fine to coarse gravel, ~70% fine to medium sand (max. diam. 1.5 mm), brown (10YR 4/3) wet to saturated, no odor, Gravel is subangular to subrounded igneous with max. diam. of 25 mm	
60	X		OC2-PMW23 W-0-07	13:40 16:20	2.2		SW		(Off split-spoon). Well graded SAND, ~5% silt, 95% fine to coarse sand (max. diam. 5 mm), trace fine gravel (max diam. 7 mm), dark grayish brown (10YR 4/2), saturated, no odor.	1:1 Bentonite Sand Mix
65							GW		Well graded GRAVEL with Sand; 60-80% fine and coarse gravel.	2" Dia. Sch. 80 PVC
70	X			17:41	1.9	No Water Recovery	SW		Well graded SAND, fine to coarse, brown, saturated. Alternating layers of SP, SW and GW as described above, max. diam. 35-40 mm, subangular to subrounded igneous and metamorphic (gneiss) gravel.	2" Dia. Sch. 80 PVC
75							SP		Poorly graded SAND, ~3-5% silt, 95-97% fine to medium sand (max diam 2 mm), brown to dark grayish brown (10YR 4/3-4/4), wet, no odor.	

In greenbelt on the northeast side of Burke Street, just northwest of Beasor Road (near PPO34).
Elevation noted is finished surface grade. B = Intermediate; C = Lower Intermediate; D = Deep

**ARCADIS**

Infrastructure, environment, facilities

LOG OF BORING MW23

(Page 4 of 8)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed	: May 20, 2005	OVA	: MiniRae
Logged By	: Ronald Halpern, PG	Driller	: Mark Green
Checked By	: Ronald Halpern, PG	Sampling Method	: Core/Simulprobe
Drilling Company	: WDC	Diameter	: 9 3/4 inches
Drill Rig	: Faline Star SOK-CH ARCH/Mud	Calibration Gas/Conc	: 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
75				5/18/05 7:50						Well1: MW23B Well2: MW23C Well3: MW23D Elev.: 149.35
				7:55	1.5		SP-SM		(Off cyclone). Poorly graded SAND with Silt; ~5-10% brown silt, 90-95% predominately fine to medium sand (max diam 1 mm), very dark grayish brown (2.5Y 3/2), saturated, no odor.	
80		90	OC2-PMW23 W-0-013		1.3		ML		Driller noted changes in drilling conditions at 79' bgs. SILT, very dense, olive (5Y 4/3), wet, no odor, rapid dilatancy, low toughness, moderate plasticity.	1:1 Bentonite Sand Mix
									Driller felt change in drilling conditions.	Medium Chips
85										2" Dia. Sch. 80 PVC
										#30 Transition Sand
90			OC2-PMW23 W-0-16	13:25			SP-SM		(88-90' Off cyclone). Poorly graded SAND, Sand with Silt; ~3-10% silt, very fine to fine sand (max 0.2 mm), speckled brown and black, saturated, no odor, micaceous.	2" Dia. Sch. 80 PVC
				14:28	1.1		SP		(Split-spoon). Poorly graded SAND, fine grained (max 0.5 mm), very dense, olive brown (2.5 YR 4/3), saturated, micaceous, mafic gravels.	#2/16 Sand
										2" Dia. Sch. 80 PVC
95							GP		(Off cyclone). Poorly graded GRAVEL with Sand, ~80% fine gravel (max 18 mm), ~20% coarse sand, saturated, subrounded, igneous.	2" Dia. PVC Sch 80 (0.020" Slotted Screen)
				14:48			ML		(Off cyclone). SILT, brown, saturated.	2" Dia. PVC Sch. 80 Blank
100										

In greenbelt on the northeast side of Burke Street, just northwest of Beasor Road (near PPO34).
Elevation noted is finished surface grade. B = Intermediate; C = Lower Intermediate; D = Deep

09-07-2006 C:\COMMON\MTech\Omega Chemical\MW-23.BOR

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 20, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Faline Star SOK-CH ARCH/Mud

OVA : MiniRae
Driller : Mark Green
Sampling Method : Core/Simulprobe
Diameter : 9 3/4 inches
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
100	X			15:38	0.3	No Water Sample			(101-102' from split spoon). SILT, very stiff (<1/4" penetration); olive brown (2.5 YR 4/3), moist, no odor, rapid dilatency, moderate toughness, low plasticity, low liquid limit, low dry strength.	Well1: MW23B Well2: MW23C Well3: MW23D — #2/16 Sand Elev.: 149.35
105							ML			
110	X	100		16:15	0.1	No Water Sample			SILTY CLAY, stiff to very stiff (~1/4" penetration), olive brown (2.5 YR 4/3), moist, occasional gray (organic) staining/marine-trace shell molds, moderate tough, high plasticity, no dilatency.	3/4" Bentonite Chips 2" Dia. Sch. PVC Blank
115							CL			1:1 Bentonite Sand Mix
120	X			17:00	0.3	No Water Sample			SILTY CLAY - Same as Above.	2" Dia. Sch. 80 PVC
125										2" Dia. Sch. 80 PVC

In greenbelt on the northeast side of Burke Street, just northwest of Beasor Road (near PPO34).
Elevation noted is finished surface grade. B = Intermediate; C = Lower Intermediate; D = Deep




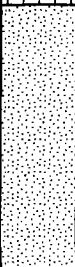

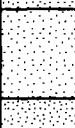
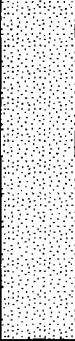
LOG OF BORING MW23

(Page 6 of 8)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 20, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Faline Star SOK-CH ARCH/Mud

OVA : MiniRae
Driller : Mark Green
Sampling Method : Core/Simulprobe
Diameter : 9 3/4 inches
Calibration Gas/Conc : 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION	
125							CL			Well1: MW23B Well2: MW23C Well3: MW23D Elev.: 149.35
130			OC2-PMW23 W-0-21	5/19/05 7:20	0.8		ML		Set Simulprobe 130-132 on 5/18/05. End drilling 5/18/05. SILT with Clay, stiff, brittle, olive (5Y 4/4), moist, no odor.	1:1 Bentonite Sand Mix
135							SP		(Off cyclone). Poorly graded SAND, predominantly medium grained (80%) with fine (3-5%) and coarse (~15%) sand and trace silt, olive brown, saturated, no odor.	2" Dia. Sch. 80 PVC
140			OC2-PMW23 W-0-27	11:49	1.0		SW		(139' Off cyclone). Poorly graded SAND, same as above. (141-142' Off split spoon). SAND, Well Graded, ~40% fine to medium-grained, ~60% coarse sand (max 5 mm) to fine gravel (12 mm), olive brown (2.5Y 4/3), saturated.	2" Dia. Sch. 80 PVC
145							SP		(Off split spoon). Poorly graded SAND, fine to medium-grained (max 1 mm diameter), olive brown.	Medium Chips
150										Sand #30
										Sand #2/16
										2" Dia. PVC Sch 80 (0.020" Slotted Screen)

In greenbelt on the northeast side of Burke Street, just northwest of Beasor Road (near PPO34).
Elevation noted is finished surface grade. B = Intermediate; C = Lower Intermediate; D = Deep

LOG OF BORING MW23

(Page 7 of 8)

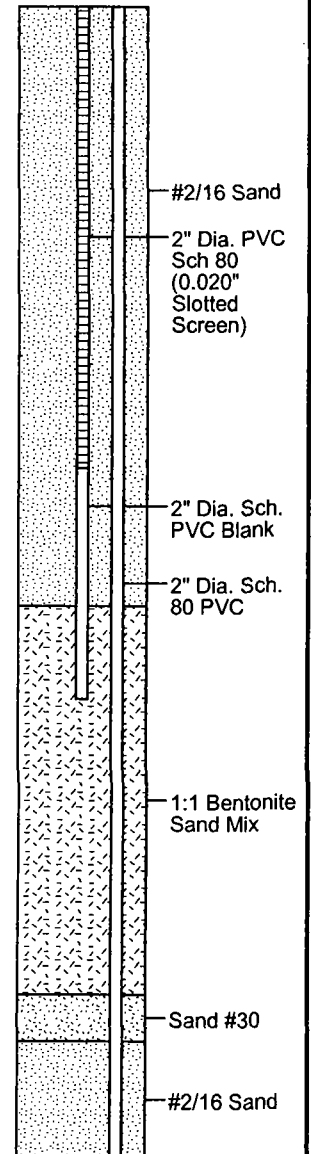
Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed : May 20, 2005
Logged By : Ronald Halpern, PG
Checked By : Ronald Halpern, PG
Drilling Company : WDC
Drill Rig : Faline Star SOK-CH ARCH/Mud

OVA : MiniRae
Driller : Mark Green
Sampling Method : Core/Simulprobe
Diameter : 9 3/4 inches
Calibration Gas/Conc : 100 ppm isobutylene

Well1: MW23B
Well2: MW23C
Well3: MW23D
Elev.: 149.35

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
150	X		OC2-PMW23 W-0-29	12:52	0.7				(151-152' off split spoon). Poorly graded SAND with Silt, fine to medium grained. Stopped drilling 5/20/05 152'. Resumed drilling 5/23/05 at 7:30 a.m.
155							SP-SM		
160	X		OC2-PMW23 W-0-32	5/20/05 8:45	0.4		GW		(160.5-161' from split spoon). Well graded GRAVEL, fine to coarse gravel (max 30 mm), subrounded, subangular, igneous.
165	X						ML		(161-162' off split spoon). SILT, stiff, olive brown (2.5Y 4/3 to 4/4), moist, low toughness, rapid dilatency, low plasticity.
170	X		OC2-PMW23 W-0-34	13:40	0.6		GP		(166-167' off split spoon). CLAYEY SILT, SILTY CLAY, hard, light olive brown (2.5 Y 5/4), moist, no odor, brittle, low to moderate plasticity, low to moderate toughness, slow to moderate dilatency.
175							ML-CL		Poorly Graded GRAVEL, predominately fine, (4-10 mm diam), subangular to subrounded, igneous origin (quartz, orthoclase, mafic), saturated (possible sluff). (171.5-172' off split spoon). CLAYEY SILT, SILTY CLAY, hard (<1/8" indentation), olive (5Y 4/4), moist to wet, no odor; Thin lamina (1-2 cm) gravelly clay, with fine to coarse gravel.



In greenbelt on the northeast side of Burke Street, just northwest of Beasor Road (near PPO34).
Elevation noted is finished surface grade. B = Intermediate; C = Lower Intermediate; D = Deep



ARCADIS

Infrastructure, environment, facilities

LOG OF BORING MW23

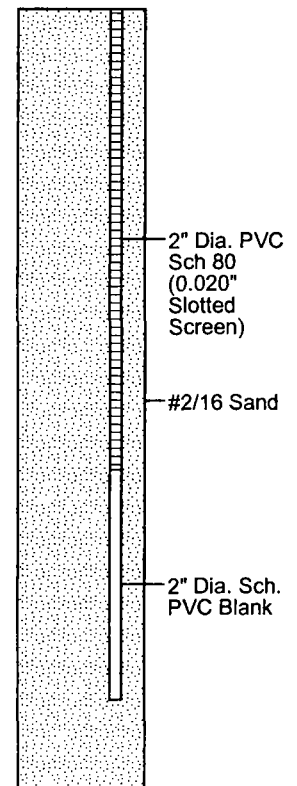
(Page 8 of 8)

Omega Chemical Operable Unit 2
Project No. CA000646.0001

Date Completed	: May 20, 2005	OVA	: MiniRae
Logged By	: Ronald Halpern, PG	Driller	: Mark Green
Checked By	: Ronald Halpern, PG	Sampling Method	: Core/Simulprobe
Drilling Company	: WDC	Diameter	: 9 3/4 inches
Drill Rig	: Faline Star SOK-CH ARCH/Mud	Calibration Gas/Conc	: 100 ppm isobutylene

Depth in Feet	Samples	Blow Count	Lab No.	Time	OVA	Recovery %	USCS	GRAPHIC	DESCRIPTION
175									
180	X		OC2-PMW23 W-0-36	16:40	0.5		SP-SM		(180.5-182' off split spoon). Poorly graded SAND with Silt, ~5-10% silt, ~90-95% fine and medium-grained sand (max 1 mm diam), very dense, light yellowish brown (2.5Y 6/3), thin lamina (2-3") of predominantly fine gravel (<19 mm) some coarse (max 30 mm) subrounded, igneous origin from 180.5 to 180.75 ft bgs.
185									
190	X		OC2-PMW23 W-0-39	17:20			GP		(191-191.5 off split spoon). Poorly graded GRAVEL with Sand, ~60-70% fine gravel (5 to 10 mm diam), 30-40% fine to coarse sand, ~3-5% silt, olive (5Y 4/4), very dense, saturated, no odor, possible slough.
195							SP		(191.5-192' off split spoon). Poorly graded SAND, predominantly fine grained, (~80%), ~15% medium grained, 3-5% silt, olive brown, very dense, wet, no odor.
195									Bottom of boring at 192'.
200									

Well1: MW23B
Well2: MW23C
Well3: MW23D
Elev.: 149.35



09-07-2005 G:\COMMON\MTech5\Omega Chemical\MW-23.BOR

In greenbelt on the northeast side of Burke Street, just northwest of Beasor Road (near PPO34).
Elevation noted is finished surface grade. B = Intermediate; C = Lower Intermediate; D = Deep

Date 05/13/05

SAMPLE IDENTIFICATION LOG

Operable Unit	Well Location	Sampled Medium (Water or Soil)	Sample Type ¹ (0 thru 6)	Sequential Sample No.	Remarks	Time	
Sample Type: 0 - Primary Sample; 1 - Field Duplicate; 2 - Field Blank; 3 - Equipment Blank 4 - Trip Blank; 5 - MS/MSD; 6 - Regulatory Split.							
5/16	OC2	PMW23	W	3	Ø1	Rinse blank from simul probe	13:25
5/16	OC2	PMW23	W	4	02	Lab-supplied Trip blank	13:30
5/16	OC2	PMW23	W	Ø	03	PMW23 @ 42'	18:21
5/17	OC2	PMW23	S	Ø	03a	Soil from simul probe #1.5-42'	
5/17	OC2	PMW23	W	4	04	Trip Blank	07:30
	OC2	PMW23	W	Ø	05	PMW23 @ 52' 2x vol, ✓	13:20
	OC2	PMW23	S	Ø	06	Soil from simul probe	
	OC2	PMW23	W	Ø	07	PMW23 @ 62' ✓	16:20
	OC2	PMW23	W	2	08	Field Blank	16:25
	OC2	PMW23	S	Ø	09	For Sieve only - no hydro	
5/18	OC2	PMW23	S	Ø	10	PMW23 @ 71.5-72'	17:40
	OC2	PMW23	W	2	11	Equip Blank 7:10 am	7:20 am
	OC2	PMW23	W	4	12	Trip Blank	7:40 am
	OC2	PMW23	W	Ø	13	PMW23 @ 82'	13:05
	OC2	PMW23	W	1	14	Duplicate	13:05
	OC2	PMW23	S	Ø	15	Soil sample 81.5-82'	13:05
	OC2	PMW23	W	Ø	16	Water sample @ 92'	14:28
	OC2	PMW23	S	Ø	17	Soil sample @ 92'	
	OC2	PMW23	S	Ø	18	Soil sample @ 101.5-102'	15:38
	OC2	PMW23	S	Ø	19	Soil sample @ 110-111'	16:15
	OC2	PMW23	S	Ø	20	Soil sample @ 120-121'	17:00
5/19	OC2	PMW23	W	Ø	21	Water sample @ 132'	07:20
	OC2	PMW23	S	Ø	22	Soil sample 131-131.5	
	OC2	PMW23	W	4	23	Trip Blank	07:40
	OC2	PMW23 Bin 1	-S		-01		
	OC2	PMW23 Bin 1	-S		-02		
	OC2	PMW23 Bin 1	-S		-03		
	OC2	PMW23 Bin 1	-S		-04		
	OC2	PMW23 Bin 1	-S		-05		
5/20	OC2	PMW23	W	4	24	Trip	8:00
	OC2	PMW23	W	2	25	Field Blank	8:05
	OC2	PMW23	W	Ø	26	Water @ 142'	11:32
	OC2	PMW23	S	Ø	27	Soil @ 142'	11:32
	OC2	PMW23	W	3	28	Soil @ 141-141.5 Equip Blank	11:47
	OC2	PMW23	W	Ø	29	Water @ 152' (1x40 ml vol)	12:52
	OC2	PMW23	W & S	Ø	30	Soil ~ 151-152.5	15:09

Notes

- Equip Blank every day
- Trip Blank every week
- Duplicate every 10 water samples
- Field Blank - every day



SUBJECT:

JOB NO:

BY:

DATE:

CHKD:

DATE:

PAGE

SHEET

1

Operable Unit	Well/Loc	Medium (W or S)	Sample Type (0 Thru 6)	Sequential Sample No	Remarks/Date/Time
Sample Type:	0 - Primary Sample 4 - Trip Blank	1 - field Duplicate 5 - MS/MSD	2 - field blank 6 - Regulatory Split	3 - Equipment Blank	
5/23/05 OC2	PMW23	W	4	31	5/23/05
OC2	PMW23	W	4	32	} 08:45 - 3x40ml @ 162'
OC2	PMW23	W	4	33	
OC2	PMW23	W	4	34	
OC2	PMW23	S	4	35	
OC2	PMW23	W	0	36	
OC2	PMW23	W	4	37	
OC2	PMW23	W	4	38	
5/24/05 OC2	PMW23	W	4	39	Trip
	PMW23	W	4	40	water @ 192'

PACIFIC SURVEYS

INDUCTION LOG GAMMA-RAY

Job No.
12142

Company WDC EXPLORATION & WELLS

Well PMW-23

File No.

Field SANTA FE SPRINGS

County LOS ANGELES State CA

Location:

OMEGA CHEMICAL: BEASOR @ BERK

Other Services:

NONE

Sec.

Twsp.

Rge.

Permanent Datum

G.L.

Elevation

Log Measured From

G.L.

0

above perm. datum

Drilling Measured From

G.L.

Elevation

K.B.
G.D.
G.L.

Date	07-28-05		
Run Number	ONE		
Depth Driller	190'		
Depth Logger	189' GR	150' Induction	
Bottom Logged Interval	188'	150'	
Top Log Interval	0'		
Casing Driller	2" PVC		
Casing Logger	189'		
Bit Size	N/A		
Type Fluid in Hole	Water		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	N/A		
Rm @ Meas. Temp	N/A		
Rmf @ Meas. Temp	N/A		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	N/A		
Rm @ BHT	N/A		
Time Circulation Stopped	-		
Time Logger on Bottom	16:30		
Max. Recorded Temperature	N/A		
Equipment Number	PS-3		
Location	L.A.		
Recorded By	RIDDER		
Witnessed By	T. Goo		

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

Gamma Ray Calibration Report

Serial Number:
Tool Model:
Performed:

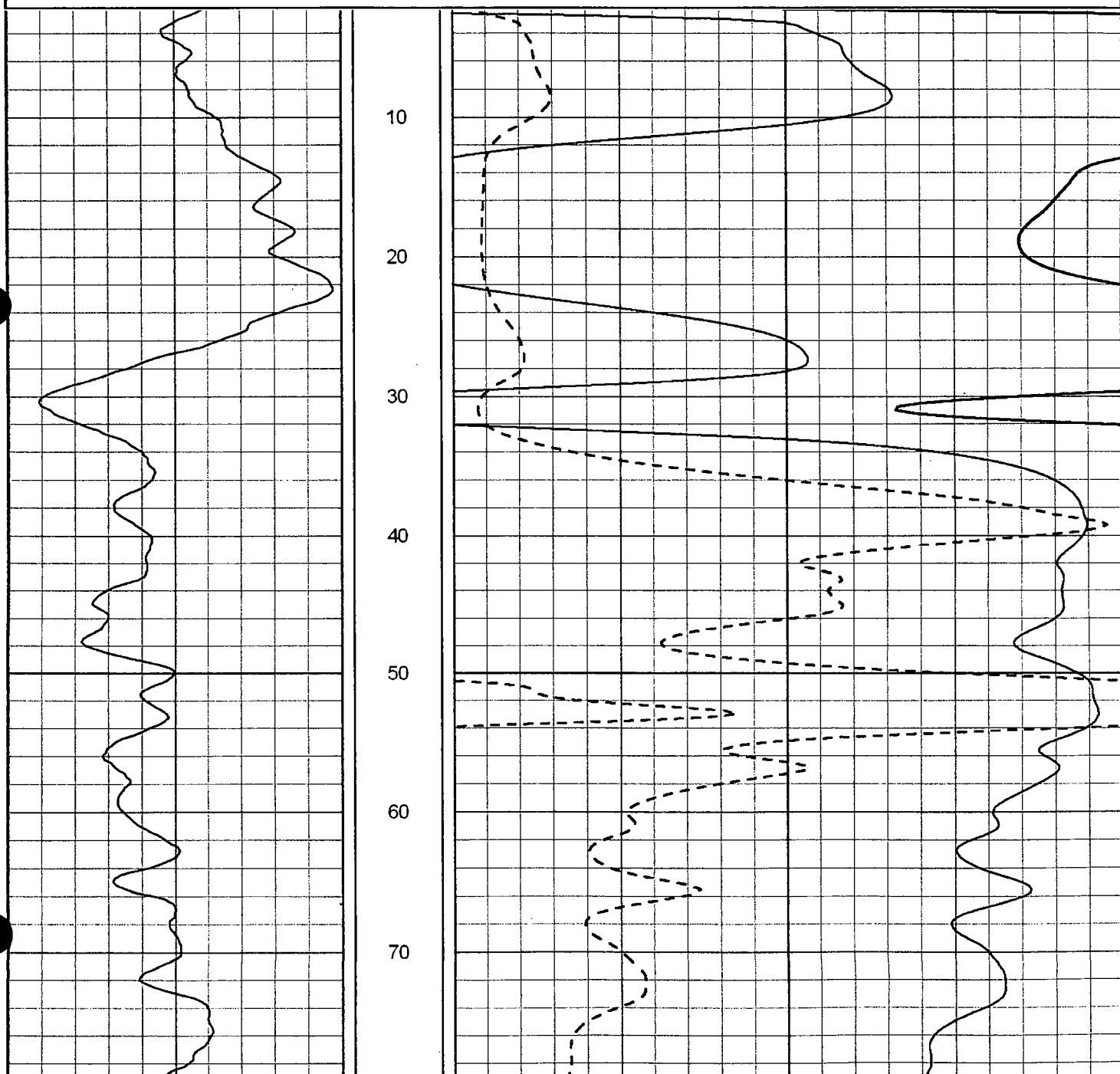
Comprobe
GROH
Tue Jan 09 08:54:56 2001

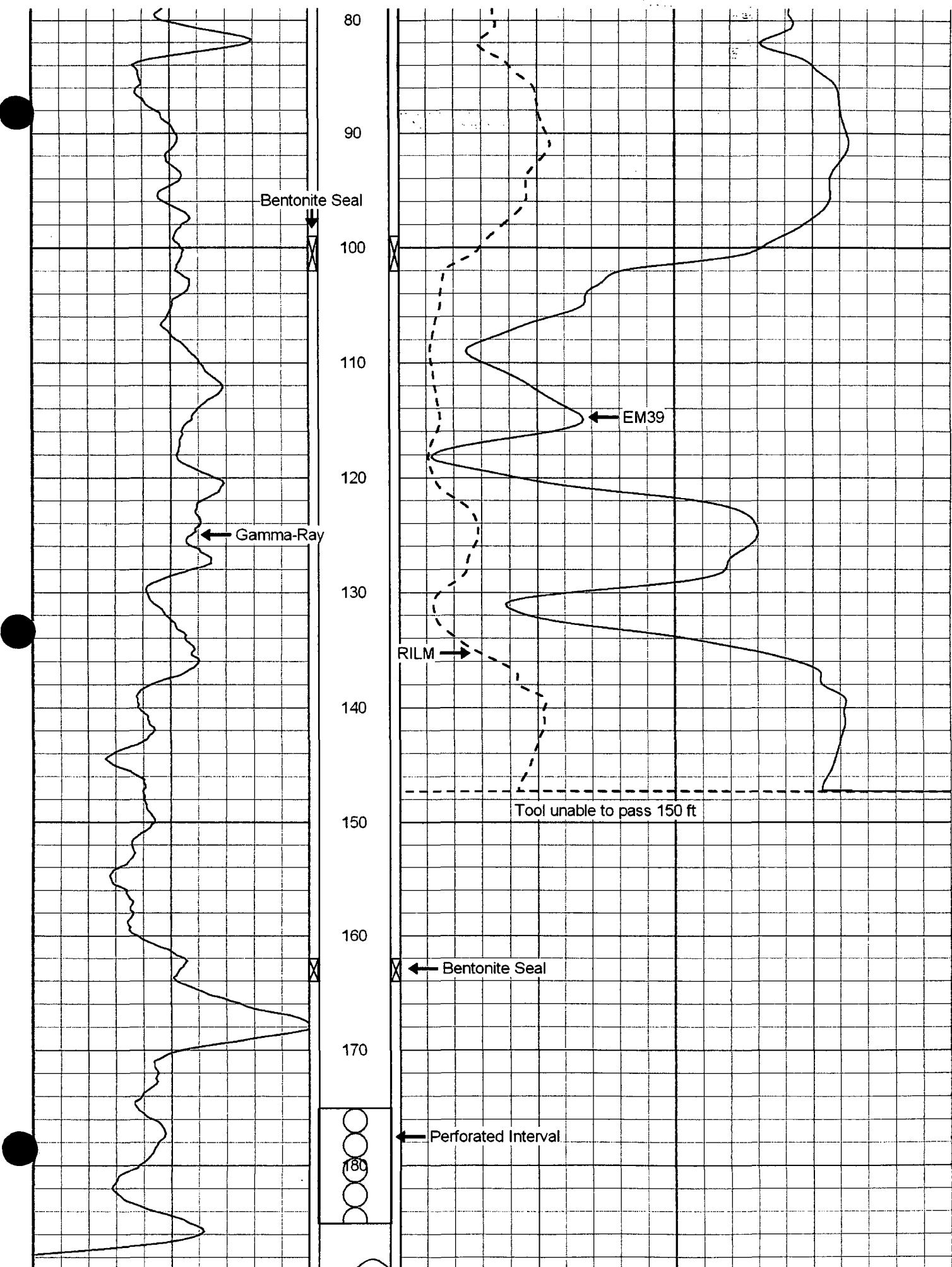
Calibrator Value:	162.0	GAPI
Background Reading:	17.5	cps
Calibrator Reading:	93.7	cps
Sensitivity:	2.1280	GAPI/cps

Database File: 12142.db
 Dataset Pathname: WDC/well/run1/DIL
 Presentation Format: dil-gr
 Dataset Creation: Thu Jul 28 15:42:40 2005 by Log Warrior 7.0 STD Ope
 Charted by: Depth in Feet scaled 1:120

20	Gamma-Ray (GAPI)	80
0	Line Speed (ft/min)	50

200	EM39 (mmho-m)	0
0	RILM (Ohm-m)	100
100	RILM back-up (Ohm-m)	200
400	EM39 back-up (mmho-m)	200





20	Gamma-Ray (GAPI)	80	200	EM39 (mmho-m)	0
0	Line Speed (ft/min)	50	0	RILM (Ohm-m)	100
			100	RILM back-up (Ohm-m)	200
			400	EM39 back-up (mmho-m)	200



SUBJECT: _____

JOB NO: _____

BY: _____ DATE: _____

CHKD: _____ DATE: _____

PAGE

SHEET

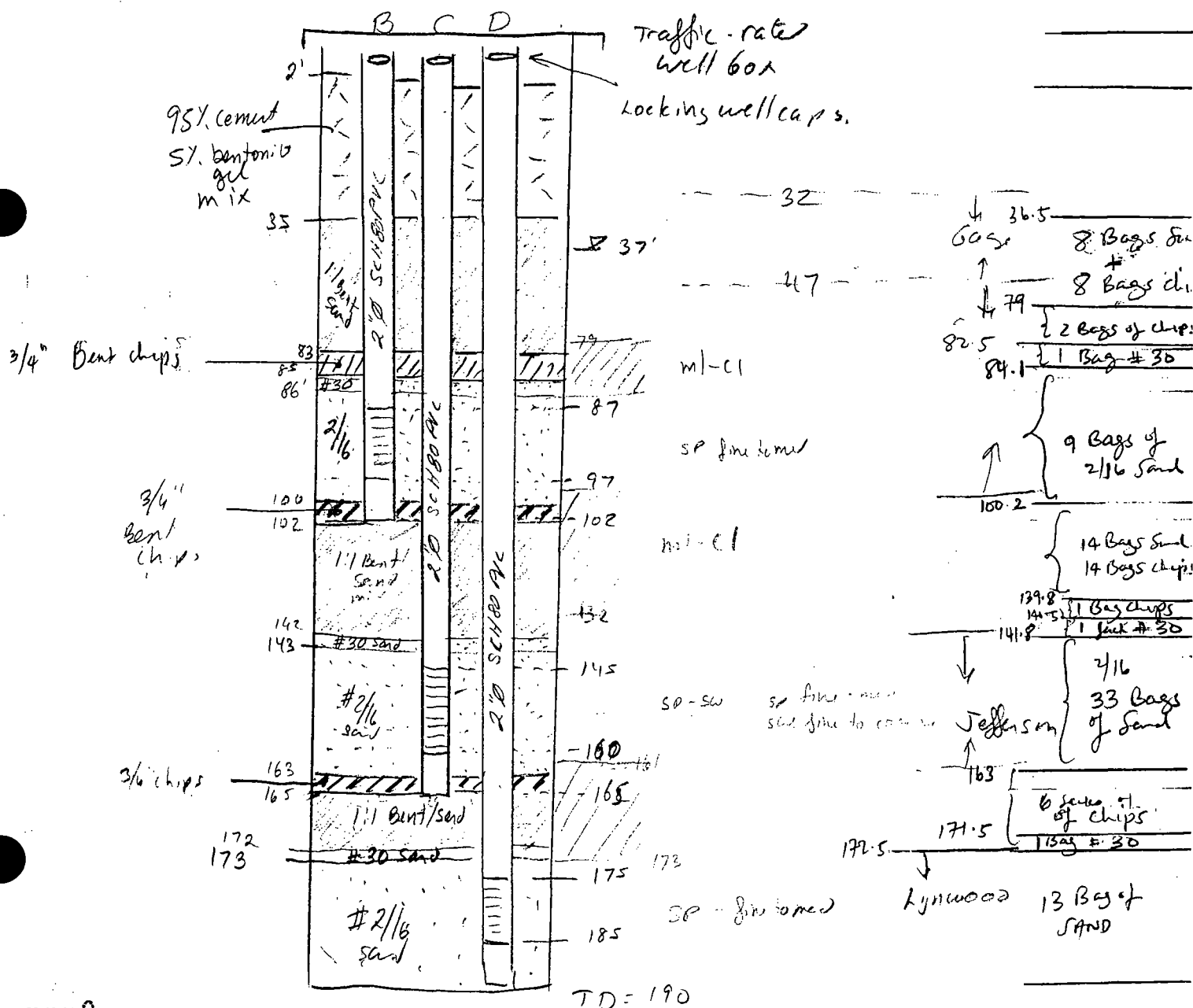
/

Well Construction PMW23

Note Modification (5/25/05 by RMH)

up to 66 @ i Bet
+ end e 1800
to be continued on
5/26

Deep well MW23D completed in Lynwood
MW23C completed in Jefferson
MW23B completed @ bottom of Hollydale.



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Appendix E

Well Development Logs

Well Development Log

Well ID# PMW 12
Date 8-16-05

DATE SAMPLED _____ START (2400 hr) _____ END (2400 hr) _____

[illegible]

INITIAL DTW 6/6/88 (Buck d. ~ 10 yellows)

FINAL DTW

2nd Hand

REMARKS/COMMENTS

Initially - Baited - 10 gallons of H₂O

Noted for H₂O to redg. H₂O level = 93.67' @ 1530.

Hard baited well baited (Hw) well dry @ ~ 101'

COMPLETED BY

Stephen D. Cryan

SIGNATURE

VED BY

DATE _____

'Well Development Log

Well ID# MW 13B
Date 7-6-05

PVC

St. Steel

Other

CASING DIAMETER (Inches)
(circle one)

2

3

4

6

3

12

OTHER:

GALLONS/LINEAR FOOT

0.17

0.38

0.66

1.5

2.6

5.8

OTHER:

TD 138 - DTW 81.6 = 56.4
water column

* gallons
linear foot

9193 XB

casing 45
volumes

calculated
purge

ACTUAL PURGE 470

DATE PURGED

START (2400 hr)

END (2400 hr)

DATE SAMPLED

START (2400 hr)

END (2400 hr)

[illegible]

INITIAL DTW 81.6

FINAL DTW

REMARKS/COMMENTS

COMPLETED BY

SIGNATURE

VIEWED BY

DATE _____

WDC JOB # 206mos

LOCATION: Whittier

RIG #: 110-11

DATE: 7/16/05

FROM	TO	TOTAL	DESCRIPTION OF ACTIVITIES
5:30	7:00	1.5	MOB TO SITE
7:00	7:30	.5	SET-UP ON MW 13
7:30	10:50	3	SURVE & BAIL MW 13 B
10:30	11:30	3	SET-PUMP & PUMP MW 13 B
			ADD 5 GAL'S DI WATER TO MW 13 A
			SURVE & BAIL DRY!

MATERIALS			EQUIPMENT SERVICE RECORD					EXPLANATION OF STANDBY			
Record Materials Provided by WDC Exploration & Wells			Record At End Of Shift At The End Of Each Week								
Item	Unit	Quantity	Description	Srvc Int.	Equip. #	Last Service	Hours/Miles				
Gravel Pack Sand	Sack/Foot	/	Carrier Engine	For 250 Hrs. Or 1000 hrs.							
Transition Sand	Sack/Foot	/	Deck Engine	For 250 Hrs. Or 1000 Hrs.							
Bentonite Pellets	Bucket/Feet	/	Rig Tender	10000 Mls							
Cement	Sack/Foot	/	Support Truck	5000 Mls.							
Bentonite Powder	Sack/Foot	/	Forklift	250 Hrs.							
Bentonite Chips	Sack/Foot	/	Forklift	250 Hrs.							
Poly Clay Grout	Sack/Foot	/	Compressor	For 250 Hrs. Or 1000 Hrs.							
Sand Grout	Yard/Foot	/	Compressor	For 250 Hrs. Or 1000 Hrs.							
Enhanced Grout	Sack/Foot	/	Shaker	250 Hrs.							
Centralizers	Each		Mud Pump	250 Hrs.							
Threaded Cap	Each		Mud Pump	250 Hrs.							
Slip Cap	Each		Generator	250 Hrs.							
Expansion Plug	Each		Welder/Gen.	100 Hrs.							
" Monument	Each		Steamcleaner	100 Hrs.							
" Flush Cover	Each										
			SAFETY & MECHANICAL INSPECTION					DAYS W/O LOST TIME IN 2004			
			Circle Item(s) in Need of Repair or Replacement					DRILLING STATISTICS			
Asphalt	Sack		Windows Tires Gauges Lights Sings Cables Clamps Brakes					Hole #	From	To	Total
Concrete	Sack		First Aid Kit Fall Device Safety Harness Safety Labels Operating Labels								
Grout Set Grout	Sack		Equipment Guards Back-Up Alarms Safety Shutdowns Relief Valves								
Lock	Each		Discharge Hoses Hydraulic Hoses Water Hoses Mud Hoses Air Hoses								
PVC Gloves	Pair		Breakout Tongs Pipe Wrenches Chain Tongs Dog Collar Slips/Bowls								
Wetex Suits	Each		Emergency Triangles Fire Extinguishers MSDS Book Safety Manual								
Shim Liners	Each		Mud Pump Injection Pump Grout Pump 2" Transfer Pump Fuel Transfer Pump								
Wire Boxes	Each		Casing Hammer Sample Hammer Mini-Dumpster Tooling Sit Stools					COMMENTS			
Chairs	Each		Equip. #	Action Needed () Check If None							
W/queen	Roll										
			TOTAL RIG HOURS WORKED								
Casing	Type	Schedule	Diameter	Feet	Misc.	Unit	Quan:	CLIENT REP:			
Blank	PVC MS SS HOPE	5 10 40 80			Per Diam	Prsn Day		CLIENT JOB #:			
Blank	PVC MS SS HOPE	5 10 40 80			Level C	Prsn Day		OPERATOR: <i>John Smith</i>			
Screen	PVC MS SS HOPE	5 10 40 80						RIG HAND: RIG HAND:			

AIRLIFTING

ARCADIS
Daily Log

Project Name: Omega Chemical Project Number: CA000646.00001 Task 00008 Page of

Site Location Washington & Lambert st. Date 06-08-06

Field Personnel WEL # MN-14

Time	Description of Activities					
	Vol. Pumped	TEMP	PH	CONDUCTIVITY	ORP	TURBIDITY
9:00	STARTED	AIRLIFTING				
9:05		22.1	8.17	1.50		999 +
9:10		22.4	8.11	1.51		905
9:15		22.1	8.09	1.50		343
9:20		22.2	8.08	1.50		170
9:25		22.3	8.07	1.51		108
9:30		22.3	8.07	1.50		70
9:40		22.5	8.04	1.50		55
9:50		22.5	8.04	1.50		38
10:00		22.5	8.03	1.50		30
10:10		22.5	8.03	1.51		25
10:20		22.6	8.02	1.51		20
10:30		22.5	8.02	1.51		15
	SHUT THE	AIR OFF,	DROP TO	75' + BOTTOM		
10:45	AIRLIFTING	AGAIN				
10:50		22.7	8.03	1.50		501
11:00		23.0	8.00	1.50		80
11:10		23.1	8.00	1.50		47
11:20		23.1	8.00	1.50		35
11:30		23.1	8.01	1.51		10

ARCADIS

Daily Log

Site Location Washington & Lambert rd. Date 06-08-06

Well # mw-14

[illegible]

'Well Development Log

Well ID# PMW 15
Date 8/16/68

TD 75 - DTW 25.92 = 49.08 $\frac{\text{gallons}}{\text{linear foot}}$ = 8.34 x 3 casing 25.03 calculated | ACTUAL 115 + 10 (Baled)
water colum linear foot volumes purge PURGE 125 Gallons

DATE SAMPLED	START (2400 hr)	END (2400 hr)
--------------	-----------------	---------------

[illegible]

INITIAL DTW 25.92 FINAL DTW 25.57

REMARKS/COMMENTS Baled (Hand) ~ 10 Gallons

COMPLETED BY Stephen R. Grogan

SIGNATURE _____

WED BY

DATE _____

'Well Development Log

Well ID# MW16A (SHALLOW)
Date 6/7/05

TD 65 - DTW 38.20 = 29.8 * gallons = 5.1 x 5 casing 25 calculated | ACTUAL
water column linear foot volumes purge PURGE

DATE SAMPLED	START (2400 hr)	END (2400 hr)
10/1/78	0000	0000
10/2/78	0000	0000
10/3/78	0000	0000
10/4/78	0000	0000
10/5/78	0000	0000
10/6/78	0000	0000
10/7/78	0000	0000
10/8/78	0000	0000
10/9/78	0000	0000
10/10/78	0000	0000
10/11/78	0000	0000
10/12/78	0000	0000
10/13/78	0000	0000
10/14/78	0000	0000
10/15/78	0000	0000
10/16/78	0000	0000
10/17/78	0000	0000
10/18/78	0000	0000
10/19/78	0000	0000
10/20/78	0000	0000
10/21/78	0000	0000
10/22/78	0000	0000
10/23/78	0000	0000
10/24/78	0000	0000
10/25/78	0000	0000
10/26/78	0000	0000
10/27/78	0000	0000
10/28/78	0000	0000
10/29/78	0000	0000
10/30/78	0000	0000
10/31/78	0000	0000

[illegible]

INITIAL DTW 35.20 FINAL DTW _____

REMARKS/COMMENTS Well is dry @ 1450. Surged well & flushed well - No Recovery

* Flushed well with ~30-40 gallons of H₂O. Recovered the same amt. and well went dry again.

COMPLETED BY Stephen A. Gumpf

SIGNATURE 162-e-

APPROVED BY _____

DATE _____

ARCADIS

Well Development Log

Project Name OMEGA CHEMICAL OU-2
 Project Number CA000646.0001-00009
 Field Personnel SAT

Well ID# MW16B (INT)
 Date 6/7/05

Casing Type PVC ^{Sch 50} St. Steel Other _____
 CASING DIAMETER (inches) (circle one) 2 3 4 6 8 12 OTHER: 2 1/2"
 GALLONS/LINEAR FOOT 0.17 0.38 0.66 1.5 2.6 5.8 OTHER: _____

TD 120 - DTW 50.40 = 69.60 gallons = 11.83 c/s casing ~ 60 calculated ACTUAL
 water column linear foot volumes purge PURGE 312

DATE PURGED 6/7/05 START (2400 hr) 1330 END (2400 hr) 1422

DATE SAMPLED _____ START (2400 hr) _____ END (2400 hr) _____

TIME (2400 hr)	VOLUME (gallons)	pH (units)	CONDUCTIVITY (mS/cm) umhos/c	ORP (mV)	TEMP. (°F/°C)	DO (mg/L)	TURBIDITY (NTU)	COLOR (visual)
1334	24	6.92	1.73		22.8	9.48	999	Dark
1338	48	7.00	1.62		22.8	9.52	408	Haze
1342	72	7.08	1.61		22.7	9.37	112	"
1346	96	7.07	1.65		22.6	9.27	95	"
1350	120	7.09	1.62		22.7	9.26	24	slight Haze
1354	144	7.11	1.63		22.6	9.27	9	"
1358	168	7.11	1.63		22.5	9.35	10	"
1402	192	7.11	1.63		22.6	9.39	10	"
1406	216	7.11	1.63		22.6	9.40	10	very slight haze
1410	240	7.11	1.62		22.5	9.38	10	"
1414	264	7.11	1.63		22.7	9.50	10	Clear
1418	288	7.11	1.63		22.6	9.55	10	Clear
1422	312	7.11	1.63		22.6	9.50	10	Clear

INITIAL DTW 50.40 FINAL DTW _____

REMARKS/COMMENTS Ex Turbidity Reading 10

COMPLETED BY Stephan A. Gyamp SIGNATURE [Signature]

VED BY _____ DATE _____

ARCADIS

Well Development Log

Project Name OMEGA CHEMICAL RU-2
 Project Number CA 0006416.0001.00009
 Field Personnel STEPHEN A. GYAMFI

Well ID# MW16C (DEEP)
 Date 6/7/05

Casing Type PVC ^{Sched 80} St. Steel Other _____
 CASING DIAMETER (Inches) 2 3 4 6 8 12 OTHER: 2 1/2"
 (circle one)
 GALLONS/LINEAR FOOT 0.17 0.38 0.66 1.5 2.6 5.8 OTHER: _____

TD 169 - DTW 51.55 = 117.45 * gallons = 20 x 5 casing 100 calculated
 water column linear foot volumes purges ACTUAL PURGE 590

DATE PURGED 6/7/05 START (2400 hr) 0830 1050 END (2400 hr) 1315

DATE SAMPLED _____ START (2400 hr) _____ END (2400 hr) _____

TIME (2400 hr)	VOLUME (gallons)	pH (units)	CONDUCTIVITY (ms/cm) umhos/c	ORP (mV)	TEMP (°F) (°C)	DO (mg/L)	TURBIDITY (NTU)	COLOR (visual)
1057	42	7.38	1.14		22.7	10.11	999	Clear (min)
1104	84	7.40	1.09		22.3	10.26	412	Clear (min)
1111	126	7.49	1.06		22.6	10.15	333	Hazy
1118	168	7.51	1.03		22.5	10.22	298	Hazy
1125	170	7.53	1.02		22.5	10.84	426	Hazy
1132	212	7.48	1.04		22.4	10.72	112	"
1139	254	7.45	1.01		22.3	10.51	214	"
1146	296	7.46	1.02		22.4	10.78	188	"
1153	338	7.48	1.02		22.3	10.73	506	"
1240	380	7.47	1.02		24.7	12.23	288	"
1247	422	7.52	1.00		23.4	11.30	405	"
1254	464	7.50	1.01		23.2	11.62	480	"
1301	506	7.50	1.00		23.0	11.15	290	"
1308	548	7.43	1.00		22.8	10.63	270	"
1315	590	7.44	1.00		22.6	10.50	290	"

INITIAL DTW 51.55 FINAL DTW No Reading (instrument malfunction)

REMARKS/COMMENTS ⊕ Shut down for recharge @ 1153. Started @ 1233

COMPLETED BY Stephen A. Gyamfi

SIGNATURE Ko2 -

REVIEWED BY _____

DATE _____

ARCADIS

Well Development Log

Project Name Omega Chem
 Project Number _____
 Field Personnel Stephen

Well ID# MW 18 A
 Date 6/27/05 - 6/28/05

Casing Type PVC St. Steel Other _____
 CASING DIAMETER (inches) 2 3 4 6 8 12 OTHER: _____
 (circle one)
 GALLONS/LINEAR FOOT 0.17 0.38 0.66 1.5 2.6 5.8 OTHER: _____
 TD 76 - DTW 29 = 47 * gallons = 7.661 casing calculated
 water column linear foot volumes purge ACTUAL
 PURGE

DATE PURGED 6-27/6-28 START (2400 hr) _____ END (2400 hr) _____

DATE SAMPLED _____ START (2400 hr) _____ END (2400 hr) _____

TIME (2400 hr)	VOLUME (gallons)	pH (units)	CONDUCTIVITY ms/cm / umhos/c	ORP (mV)	TEMP. (°F / °C)	DO (mg/L)	TURBIDITY (NTU)	COLOR (visual)
<u>14:15</u>							—	
<u>14:30</u>	<u>75</u>						—	
<u>14:45</u>	<u>112</u>						<u>830</u>	
<u>15:00</u>	<u>149</u>						<u>635</u>	
<u>15:15</u>	<u>186</u>						<u>304</u>	
<u>15:30</u>	<u>223</u>						<u>105</u>	
<u>15:45</u>	<u>260</u>						<u>59</u>	
<u>16:00</u>	<u>297</u>						<u>49</u>	
<u>6-28</u>								
<u>0830</u>	<u>—</u>						<u>217</u>	
<u>0845</u>	<u>334</u>						<u>15.5</u>	
<u>09:00</u>	<u>371</u>						<u>3.55</u>	
<u>09:15</u>	<u>408</u>						<u>2.42</u>	
<u>09:30</u>	<u>445</u>						<u>1.45</u>	

INITIAL DTW _____ FINAL DTW _____

REMARKS/COMMENTS _____

COMPLETED BY _____

SIGNATURE _____

VERIFIED BY _____

DATE _____

'Well Development Log

Well ID# 18 MW-18B
Date 6/105

CASING DIAMETER (Inches) (circle one)	2	3	4	6	8	12	OTHER: _____
GALLONS/LINEAR FOOT	0.17	0.38	0.66	1.5	2.6	5.8	OTHER: _____

DATE SAMPLED _____ START (2400 hr) _____ END (2400 hr) _____

[illegible]

FINAL DTW _____

REMARKS/COMMENTS

SIGNATURE

DATE _____

ARCADIS

'Well Development Log

Project Name OMEGA CHEMICAL OH-2
 Project Number CA 646.01.09
 Field Personnel Stephen A. Giamfi

Well ID# MW18C
 Date 6/23/05

Casing Type PVC St. Steel _____ Other _____
 Casing Diameter (Inches) (circle one) 2 3 4 6 8 12 OTHER: _____
 Gallons/Linear Foot 0.17 0.38 0.66 1.5 2.6 5.8 OTHER: _____
 TD _____ - DTW _____ = _____ * gallons = _____ casing _____ calculated _____ ACTUAL
 water column linear foot volumes purge PURGE

DATE PURGED 6/23/05 START (2400 hr) 1413/1535 END (2400 hr) 1740
 DATE SAMPLED N/A START (2400 hr) _____ END (2400 hr) _____

TIME (2400 hr)	* VOLUME (gallons)	pH (units)	CONDUCTIVITY (mS/cm) umhos/c	ORP (mV)	TEMP (°F/°C)	DO (mg/L)	TURBIDITY (NTU)	COLOR (visual)
1525	Initial + 20	7.07	0.633		27.0	11.42	74	Hazy
1555	40	7.84	0.631		24.1	11.14	450	"
1600	70	7.82	0.618		22.8	10.90	406	Clear
1605	80	8.15	0.615		22.8	10.70	162	"
1610	100	8.10	0.624		22.8	10.33	145	"
1615	100	8.02	0.621		22.7	10.31	140	"
1620	140	7.97	0.616		23.4	9.89	49	"
1625	120	8.00	0.616		23.1	9.85	42	"
1630	180	7.95	0.616		22.7	10.08	35	"
1635	240	8.05	0.619		22.9	9.93	29	"
1645	160	8.02	0.622		22.6	9.81	35	"
1700	180	8.16	0.616		22.5	9.70	25	"
1710	210	8.10	0.616		22.8	9.67	10	"
1720	230	7.68	0.614		22.9	9.58	8	"
1730	250	7.53	0.614		22.5	9.50	4	"
1735	260	7.53	0.615		22.4	9.75	1	"
1737	264	7.54	0.615		22.4	9.75	1	"

INITIAL DTW 34.61 FINAL DTW 30.14

REMARKS/COMMENTS FR ~ 4 spm (@ ~ 1413, piping predominantly mud/420 inches)
Initial Vol. of H₂O/Mud Bailed ~ 45 gallon; Vol of H₂O/mud pumped before taking #20
Quality Readings ~ 140 gallons

COMPLETED BY STEPHEN A. GIAMFI

SIGNATURE [Signature]

WITNESSED BY _____
 * Note Initial to clean/remove muddy H₂O = 140 gallons

DATE _____

tot Vol purged (including Bailing) ~ 450 gallons

ARCADIS

Daily Log

Project Name: Omega Chemical Project Number: CA000646.00001 Task 00008 Page 4 of 4

Site Location PMW20 A Date 5/31/06

Field Personnel _____

[illegible]

HIDLIFTING

ARCADIS

Daily Log

Project Name: Omega Chemical Project Number: CA000646.00001 Task 00008 Page of Site Location GEARY & TELEGRAPH RD. Date JUNE 05, 2006Field Personnel WELL # MW 20-A

Time	Description of Activities					
	Vol. Pumped	Temp	PH	Conductivity	ORP	Turbidity
10:10	started	pumping				
10:20		22.4	8.95	1.68		999 +
10:30		22.9	8.80	1.51		999 +
10:40		22.8	8.75	1.50		575
10:50		22.9	8.95	1.50		458
11:00		22.8	8.99	1.49		200
11:10		23.2	9.01	1.48		113
11:20		23.1	9.02	1.47		81
11:30		23.3	9.02	1.47		79
11:40		23.5	9.03	1.46		58
11:50		23.5	9.01	1.46		50
12:00		23.4	8.97	1.46		55
12:10		23.5	8.96	1.45		33
12:20		23.8	8.97	1.45		33
12:30		24.0	8.97	1.45		23
12:40		24.0	8.96	1.45		18
12:50		24.0	6.12	1.52		18
1:00		24.5	8.05	1.46		16
1:10		24.2	8.24	1.45		15
1:20		24.7	8.26	1.45		17
1:30		25.8	8.28	1.46		18
1:40		25.2	8.29	1.45		10
1:50		24.9	8.29	1.45		10
2:00		25.5	8.28	1.45		7
2:10		25.6	8.29	1.45		5

ARCADIS
Daily Log

Project Name: Omega Chemical Project Number: CA000646.00001 Task 00008 Page of

Site Location GEARY & TELEGRAPH RD. Date 06-01-06

Field Personnel WEL# MW-20-B

Time	Description of Activities					
	Vol Pumped	Temp	pH	Conductivity	ORP	Turbidity
9:28						
9:38	30 gals.	21.5	8.61	1.47		Muddy
9:48	30 gals.	22.0	7.60	1.50		353
9:58	30 gals	21.9	7.70	1.50		198
10:08	30 gals	22.1	7.65	1.49		106
10:18	30 gals	22.0	7.72	1.50		104
10:28	30 "	22.0	7.71	1.49		77
10:38	30 "	22.1	7.73	1.49		72
10:48	30 "	22.2	7.73	1.51		69
10:58	30 "	22.2	7.73	1.50		63
11:08	30 "	22.1	7.72	1.50		64
12:08	150 "					54
TOTAL	450 GALS					

ARCADIS

Daily Log

Field Personnel WELL # MW 20-1-B

[illegible]

ARCADIS

Daily Log

Project Name: Omega Chemical Project Number: CA000646.00001 Task 00008 Page of

Site Location GEARY & TELEGRAPH RD. Date JUNE 05, 2006

Field Personnel Well # MW 20-B

[illegible]

AIRLIFTINGARCADIS
Daily LogProject Name: Omega Chemical Project Number: CA000646.00001 Task 00008 Page ____ of ____Site Location GEARY & TELEGRAPH RD. Date JUNE 02, 2006Field Personnel WEL # MW 20-C

Time	Description of Activities					
	Vol Pumped	Temp	pH	Conductivity	ORP	TURBIDITY
10:30	started	Airlifting				V. MUDDY
11:00		25.0	8.89	1.15		946
11:30		23.7	8.73	.934		355
11:45		23.5	8.54	.905		668
12:00		23.6	8.47	.889		381
12:15		23.7	8.47	.884		492
12:30		23.4	8.51	.872		160
12:45		23.7	8.54	.873		98
1:00		23.6	8.61	.874		131
1:15		23.8	8.66	.868		64
1:30		23.8	8.74	.863		71
1:45		23.5	8.82	.861		38
2:00		23.5	8.85	.860		35
2:15		23.4	8.86	.858		31
2:30		23.3	8.92	.858		89
2:45		23.3	8.88	.856		118
3:00		23.1	8.87	.854		42
3:15		22.9	8.87	.853		18
3:30		23.1	8.86	.852		13
3:40		23.0	8.86	.852		10
3:50		22.8	8.90	.852		7
3:55		23.0	8.87	.851		5
4:00		22.9	8.87	.850		5

ARCADIS

Daily Log

Project Name: Omega Chemical Project Number: CA000646.00001 Task 00008 Page 1 of 2

Site Location Geary & Telegraph Rd. Date JUNE 13, 2006

Field Personnel Well # MW 20-A

[illegible]

ARCADIS

Daily Log

Project Name: Omega Chemical Project Number: CA000646.00001 Task 00008 Page of

Site Location Geary & Telegraph rd. Date June 12, 2006

Field Personnel *Well# MW 20-B*

[illegible]

purifying

Field Personnel *Well # MW 20-C*

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5/18/2006

ARCADIS

Daily Log

Project Name: Omega Chemical Project Number: CA000646.00001 Task 00008 Page of

Site Location SORENSEN AVE. + Burke st. Date JUNE 06, 2006

Field Personnel WEL # EW 1

[illegible]

ARCADIS Daily Log

Project Name: Omega Chemical Project Number: CA000646.00001 Task 00008 Page of

Site Location SORENSEN AVE & BURKE ST. Date JUNE 07, 2006

Field Personnel WEL # EW-1

Time	Description of Activities					
	Vol. Pumped	TEMP	PH	CONDUCTIVITY	ORP	TURBIDITY
10:00	started	pumping				
10:10	178.60	22.4	7.45	1.75		110
10:20	357.20	22.3	7.23	1.75		14
10:30	535.80	22.3	7.23	1.75		9
10:40	714.40	22.4	7.23	1.75		3
1:25	started	pumping				
1:28	719.40	23.6	7.15	1.74		38
1:32	774.40	23.2	7.16	1.75		33
1:37	799	23.0	7.09	1.75		2
1:40	829	22.9	7.06	1.75		1
1:43	854	23.0	7.06	1.74		3.6
1:46	874	22.9	7.03	1.75		1
1:49	899	23.0	7.03	1.75		1-2
1:54	Started Pumping					
1:55	929	23.3	7.06	1.74		1
1:57	stop pumping - drop 5 ft.					
2:07	Started Pumping					
2:09	954	23.2	7.03	1.75		6
2:12	984	23.0	7.03	1.75		1-2
2:15	1001	23.0	7.04	1.75		0
2:18	1028	22.9	7.04	1.75		0
2:21	1055	22.9	7.06	1.75		0
2:24	1082	22.9	7.05	1.75		0
2:31	1197	22.9	7.04	1.75		0

↑ p pump another 2 ft - TD = 77 in let @ 75'

ARCADIS

Appendix F

XYZ Well Survey Data

MONITORING WELLS

WELL	NORTH (UTM-11 METERS)	EAST (UTM-11 METERS)	LATITUDE (DD)	LONGITUDE (DD)	TOR (ELEV.-FT)	FS/NG (ELEV.-FT)	TOC-A (ELEV.-FT)	TOC-B (ELEV.-FT)	TOC-C (ELEV.-FT)	TOC-D (ELEVATION)	RISER_HT-A	RISER_HT-B	RISER_HT-C	RISER_HT-D
MW-12	3759544.05	403349.18	33.9719957	-118.0462302	221.22	221.23	220.87				-0.36			
MW-13	3759304.29	403429.28	33.9698410	-118.0453368	206.33	206.30	206.02	205.88			-0.28	-0.42		
MW-14	3759053.87	403113.19	33.9675538	-118.0487301	172.97	172.98	172.63				-0.35			
MW-15	3758539.73	402532.68	33.9628639	-118.0549556	148.65	148.57	148.28				-0.29	-148.57		
MW-16	3757951.13	401492.78	33.9574593	-118.0661432	153.47	153.50	153.19	153.26						
MW-17	3757463.42	401264.18	33.9530399	-118.0685620	159.40	159.42	159.03	158.90	159.00					
MW-18	3757631.05	402590.55	33.9546753	-118.0542282	144.32	144.74	143.73	143.83						
MW-19	3756760.85	401687.06	33.9467442	-118.0639072	159.01	158.94	158.73				-0.21			
MW-20	3756601.72	400670.84	33.9452137	-118.0748847	142.07	141.99	141.31	141.32	141.35		-0.68	-0.67	-0.64	
MW-21	3756893.99	400223.26	33.9478069	-118.0797607	129.27	128.91	128.81				-0.10			
MW-22	3757381.90	400466.19	33.9522296	-118.0771876	151.47	151.36	150.82				-0.54			
MW-23	3758349.18	402203.78	33.9611151	-118.0584936	149.36	149.35		149.06	149.07	148.04				143.13
EW-1	3758460.37	402022.79	33.9621008	-118.0604647	152.27	152.43	152.11				-0.32			
MW-08A	3758460.73	402024.99	33.9621043	-118.0604409	152.59	152.62	152.34				-0.28			
MW-08B	3758457.80	402028.55	33.9620782	-118.0604021	152.50	152.54	152.20				-0.34			
MW-08C	3758457.80	402028.55	33.9620782	-118.0604021	152.50	152.54	152.23				-0.31			
MW-08D	3758462.12	402021.54	33.9621165	-118.0604785	152.27	152.43	152.11				-0.32			
OW-8B	3759212.72	403480.10	33.9690200	-118.0447767	201.43	200.81								

Professional's Name:
Armando D. Dupont

Professional's License Type:
Professional Land Surveyor

Professional's License Number:
7780

NOTE:

RISER_HT - RISER HEIGHT

RISER HEIGHT: THE MEASURED DISTANCE FROM GROUND SURFACE TO TOP OF WELL CASING

DD: DECIMAL DEGREES

TOR: TOP OF RIM

TOC: TOP OF CASING

NG: NATURAL GROUND

FS: FINISH SURFACE



MONITORING WELLS

WELL	NORTH	EAST	LATITUDE (DD)	LONGITUDE (DD)	TOR	FS/NG	TOC-A	TOC-B	TOC-C	RISER_HT-A	RISER_HT-B	RISER_HT-C
	(UTM-11 METERS)	(UTM-11 METERS)			(ELEV.-FT)	(ELEV.-FT)	(ELEV.-FT)	(ELEV.-FT)	(ELEV.-FT)			
MW-12	3759544.05	403349.18	33.9719957	-118.0462302	221.22	221.23	220.87			-0.36		

Professional's Name:
Armando D. Dupont

Professional's License Type:
Professional Land Surveyor

Professional's License Number:
7780

NOTE:

RISER_HT - RISER HEIGHT

RISER HEIGHT: THE MEASURED DISTANCE FROM GROUND SURFACE TO TOP OF WELL CASING

DD: DECIMAL DEGREES

TOR: TOP OF RIM

TOC: TOP OF CASING

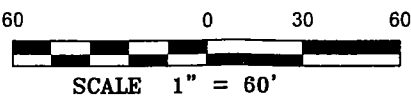
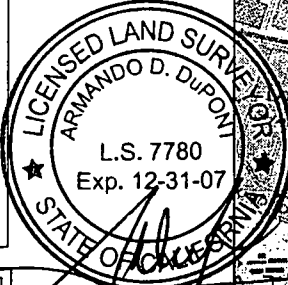
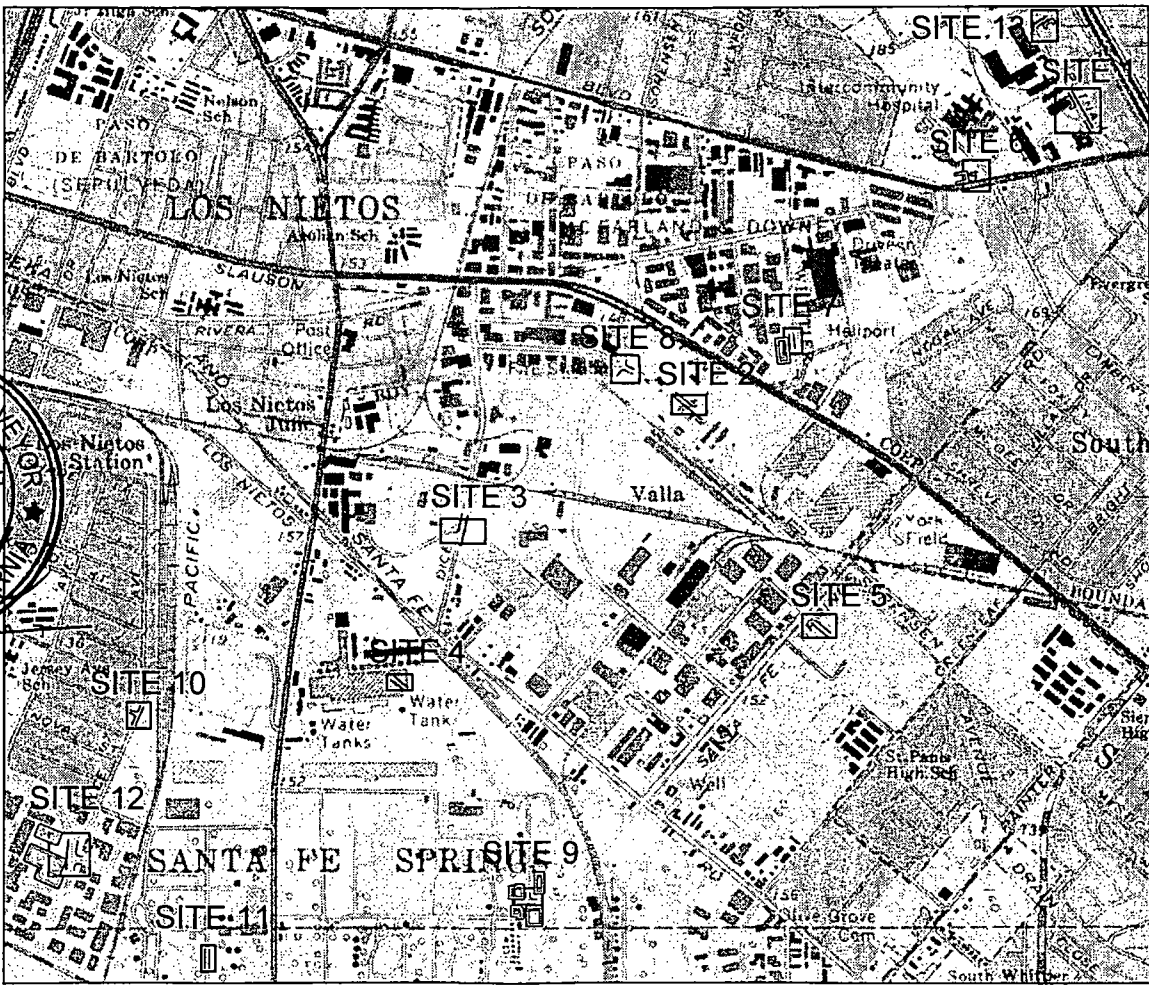
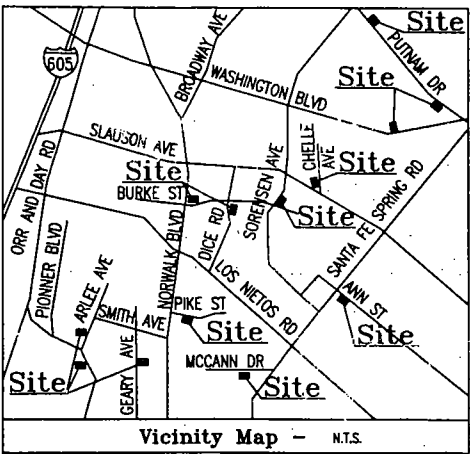
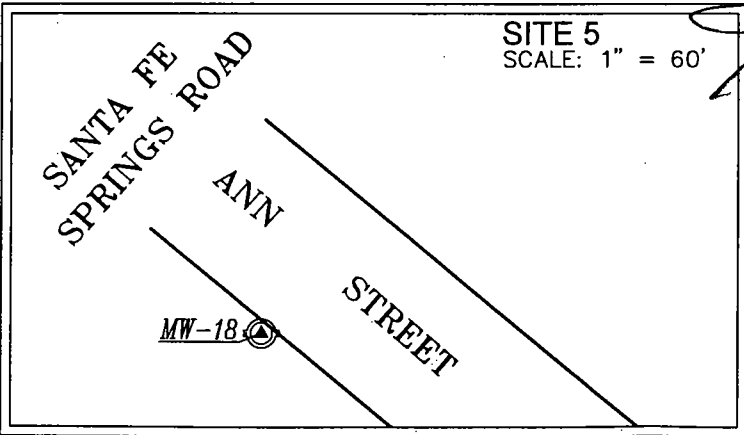
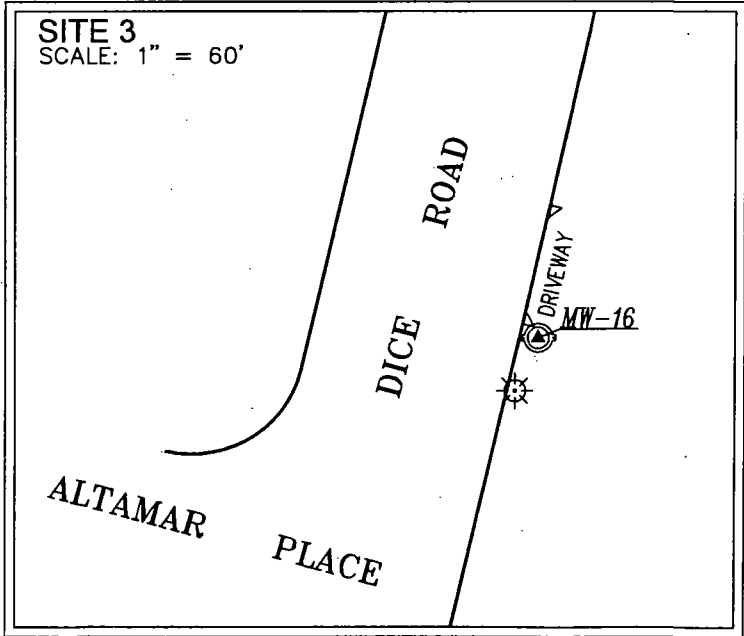
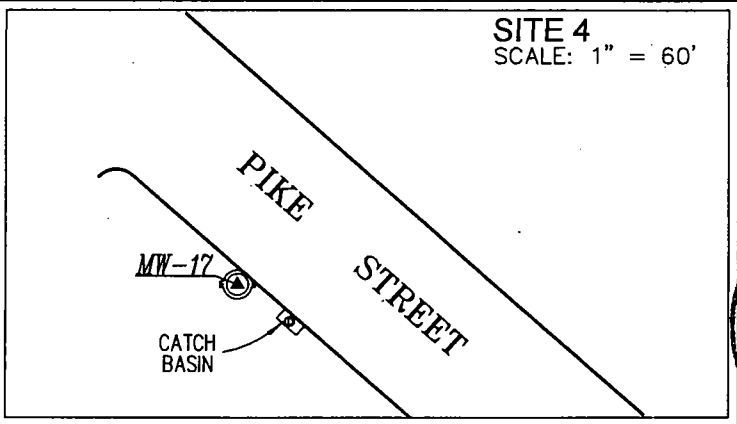
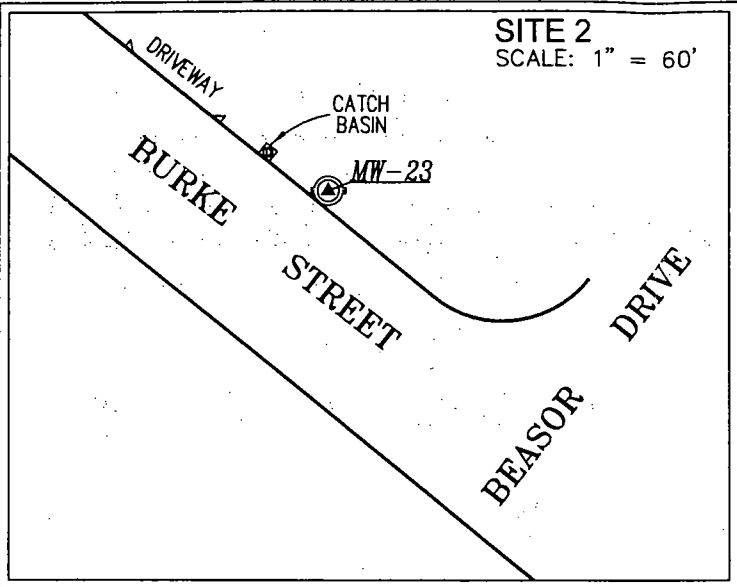
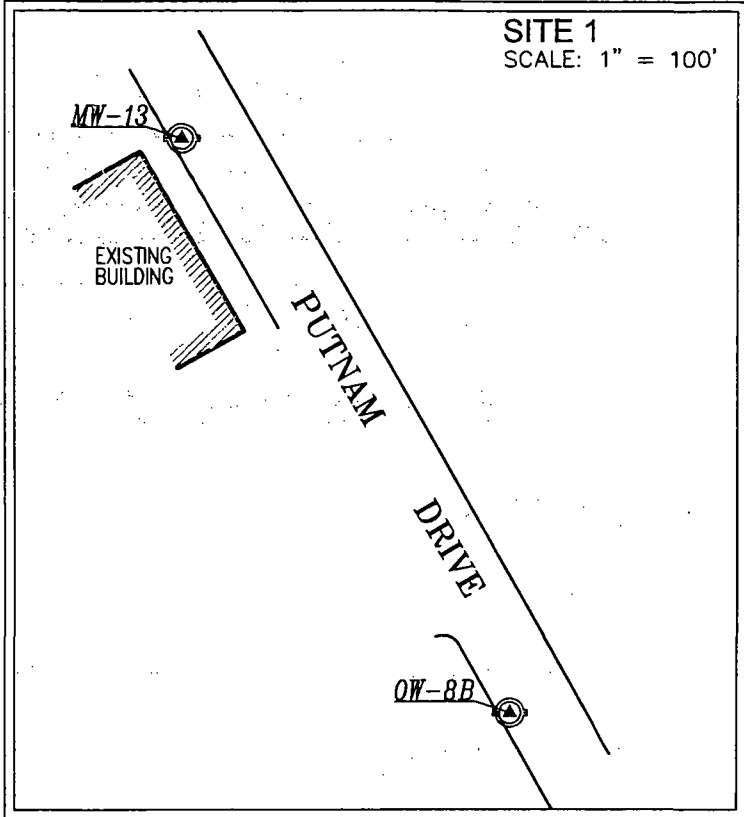
NG: NATURAL GROUND

FS: FINISH SURFACE

MONITORING WELLS										
WELL	NORTH	EAST	LATITUDE (DD)	LONGITUDE (DD)	TOR	FS/NG	TOC-A	TOC-B	TOC-C	TOC-D
	(UTM-11 METERS)	(UTM-11 METERS)			(ELEV.-FT)	(ELEV.-FT)	(ELEV.-FT)	(ELEV.-FT)	(ELEV.-FT)	(ELEV.-FT)
MW-16	3757951.13	401492.78	33.9574593	-118.0661432	153.47	153.50	153.19	153.26		
MW-17	3757463.42	401264.18	33.9530399	-118.0685620	159.40	159.42	159.03	158.90	159.00	
MW-18	3757631.05	402590.55	33.9546753	-118.0542282	144.32	144.74	143.73	143.83		
MW-23	3758349.18	402203.78	33.9611151	-118.0584936	149.35	149.35		149.06	149.07	148.04

SITE PLAN MONITORING WELL LOCATIONS

SANTA FE SPRINGS, CA 90670



COORDINATES

THE COORDINATES SHOWN HEREON ARE BASED UPON THE UTM COORDINATE SYSTEM (NAD83), ZONE 11, METER, BASED UPON STATIC GPS OBSERVATION, HOLDING NGS POINT NO. DY0238.

BENCH MARK

THE ELEVATIONS SHOWN HEREON ARE BASED UPON NGS POINT NO. DY0238, ELEVATION = 118.58 FEET (NAVD88)

DATES OF SURVEY

AUGUST 5, 2005
JUNE 14, 2006

Legend

- MONITORING WELL
- LIGHT STANDARD
- TOP OF RM
- TOP OF CASING
- STORM DRAIN MANHOLE
- CONCRETE

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FULLERTON, CA 92835
(714) 278-0992
(714) 278-0051 Fax

DATE OF SURVEY: AUGUST 5, 2005

WELL	MONITORING WELLS				TOR (ELEV.-FT)	TOC-A (ELEV.-FT)	TOC-B (ELEV.-FT)	TOC-C (ELEV.-FT)	TOC-D (ELEV.-FT)
	NORTH (UTM-11 METERS)	EAST (UTM-11 METERS)	LATITUDE (DD)	LONGITUDE (DD)					
MW-13	3759304.28	403429.28	33.9698410	-118.0453368	206.33	206.02	205.88		
MW-16	3757951.13	401492.78	33.9574593	-118.0661432	153.47	153.19	153.19	153.26	
MW-17	3757463.42	401264.18	33.9530399	-118.0685620	159.40	159.03	158.90	159.00	
MW-18	3757631.05	402590.55	33.9546753	-118.0542282	144.32	143.74	143.73	143.83	
MW-23	3758349.18	402203.78	33.9611151	-118.0584936	149.35		149.06	149.07	148.04
OW-8B	3759212.72	403480.10	33.9690200	-118.0447767	201.43	200.81			

	DATE	REVISION	BY
	08/10/05	SUBMITTAL	MN
1	06/16/06	ADD WELLS	MN
2	06/26/06	ADD MW-12	MN
3	08/09/06	CLIENT'S COMMENTS	MN
4	08/16/06	CLIENT'S COMMENTS	MN
4	08/23/06	CLIENT'S COMMENTS	MN

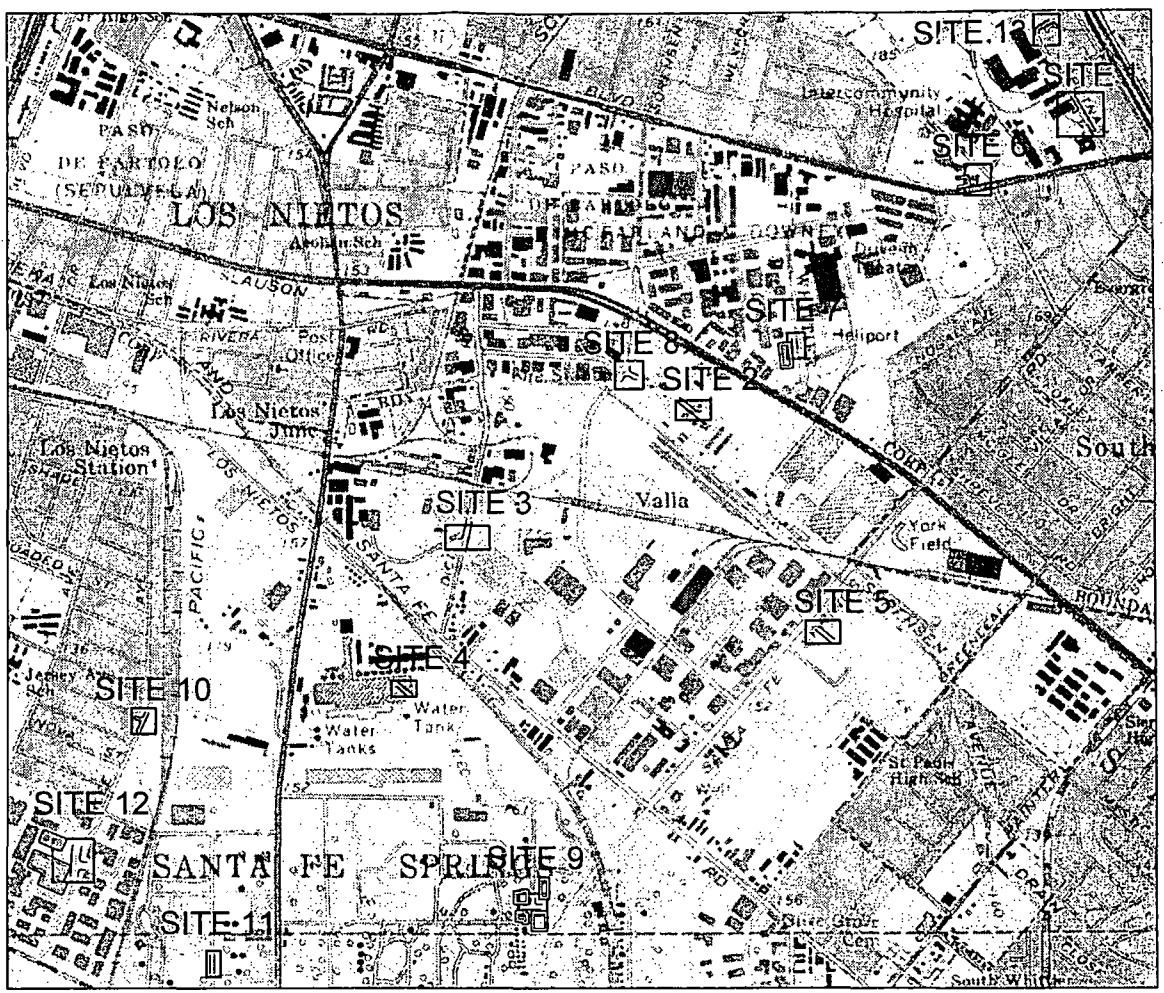
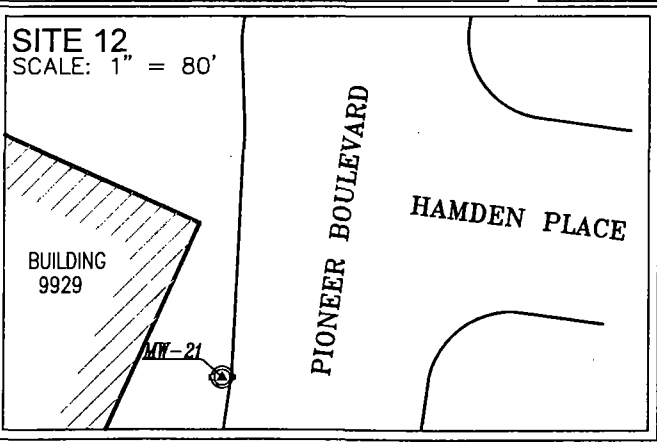
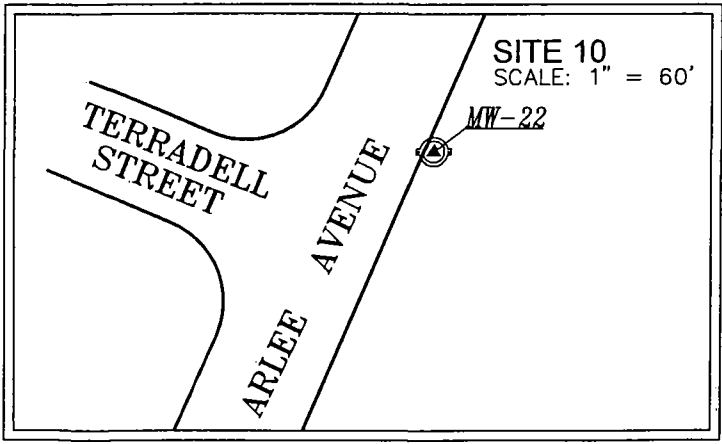
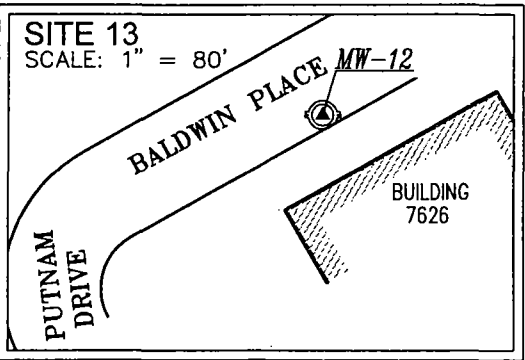
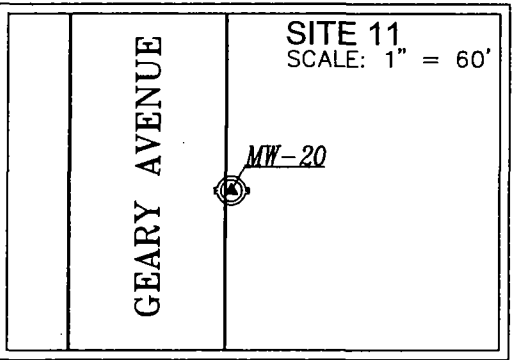
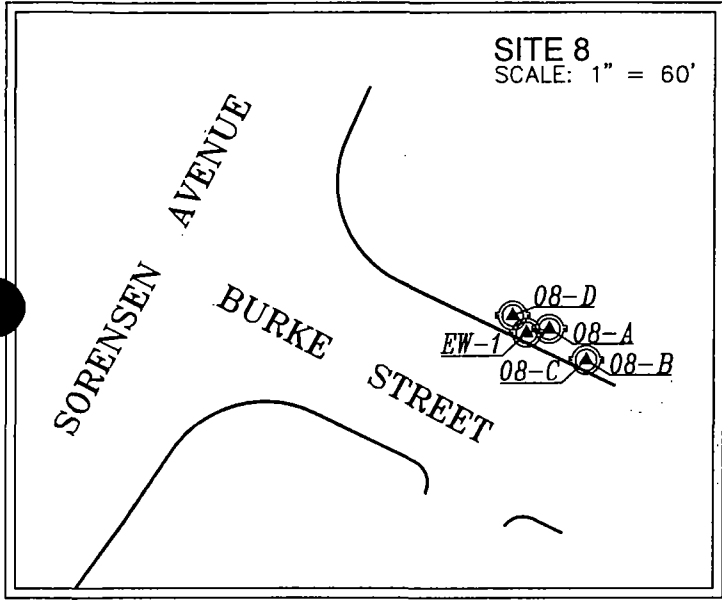
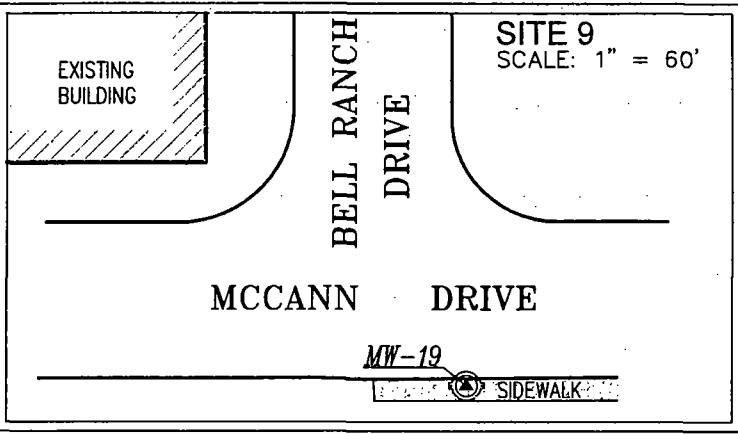
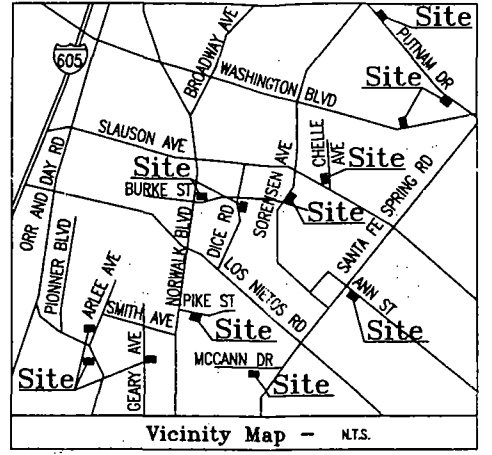
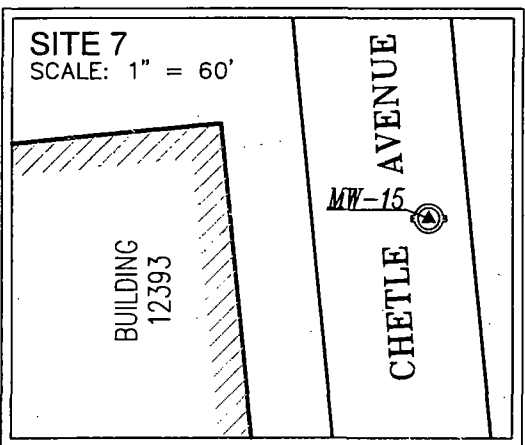
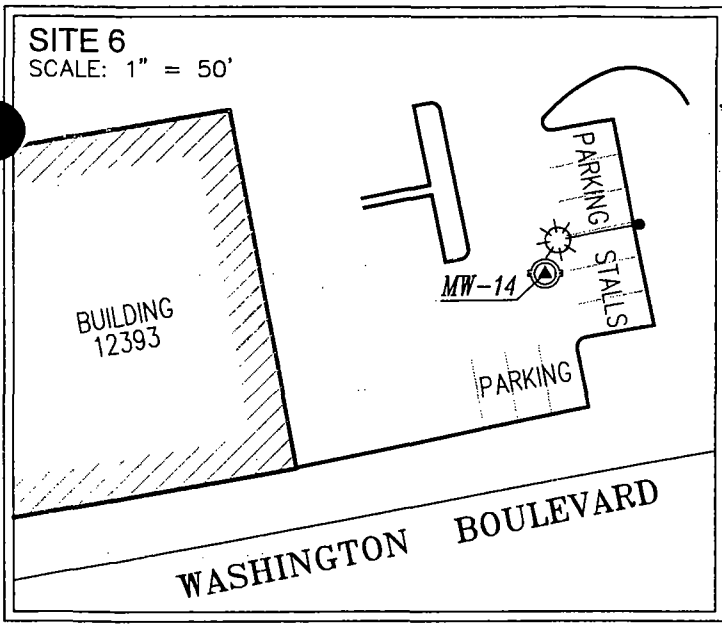
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SITE PLAN

MONITORING WELL LOCATIONS

SANTA FE SPRINGS, CA 90670



DATE OF SURVEY: JUNE 14, 2006

WELL	NORTH		EAST	LATITUDE (DD)	LONGITUDE (DD)	MONITORING WELLS					RISER_HT-A	RISER_HT-B	RISER_HT-C
	(UTM-11 METERS)	(UTM-11 METERS)				TOR (ELEV.-FT)	FS/NG (ELEV.-FT)	TOC-A (ELEV.-FT)	TOC-B (ELEV.-FT)	TOC-C (ELEV.-FT)			
MW-13	3759304.29	403429.28	33.9698410	-118.0453368	-118.0453368	206.34	206.30	206.01	205.87		-0.29	-0.43	
MW-14	3759053.87	403113.19	33.9675538	-118.0487301	-118.0487301	172.97	172.98	172.63			-0.35		
MW-15	3758539.73	402532.68	33.9628639	-118.0549556	-118.0549556	148.65	148.57	148.28			-0.29		
MW-19	3756760.85	401687.06	33.9467442	-118.0639072	-118.0639072	159.01	158.94	158.73			-0.21		
MW-20	3756601.72	400670.84	33.9452137	-118.0748847	-118.0748847	142.07	141.99	141.31	141.32	141.35	-0.68	-0.67	-0.64
MW-21	3756893.99	400223.26	33.9478069	-118.0797607	-118.0797607	129.27	128.91	128.81			-0.10		
MW-22	3757381.90	400466.19	33.9522296	-118.0771876	-118.0771876	151.47	151.36	150.82			-0.54		
EW-1	3758460.37	402022.79	33.9621008	-118.0604647	-118.0604647	152.27	152.43	152.11			-0.32		
MW-08A	3758460.73	402024.99	33.9621043	-118.0604409	-118.0604409	152.59	152.62	152.34			-0.28		
MW-08B	3758457.80	402028.55	33.9620782	-118.0604021	-118.0604021	152.50	152.54	152.20			-0.34		
MW-08C	3758457.80	402028.55	33.9620782	-118.0604021	-118.0604021	152.50	152.54	152.23			-0.31		
MW-08D	3758462.12	402021.54	33.9621165	-118.0604785	-118.0604785	152.27	152.43	152.11			-0.32		

DATE OF SURVEY: JUNE 24, 2006

WELL	NORTH		EAST	LATITUDE (DD)	LONGITUDE (DD)	MONITORING WELLS					RISER_HT-A	RISER_HT-B	RISER_HT-C
	(UTM-11 METERS)	(UTM-11 METERS)				TOR (ELEV.-FT)	FS/NG (ELEV.-FT)	TOC-A (ELEV.-FT)	TOC-B (ELEV.-FT)	TOC-C (ELEV.-FT)			
MW-12	3759544.05	403349.18	33.9719957	-118.0462302	-118.0462302	221.22	221.23	220.87			-0.36		

COORDINATES
THE COORDINATES SHOWN HEREON ARE BASED UPON THE UTM COORDINATE SYSTEM (NAD83), ZONE 11, METER, BASED UPON STATIC GPS OBSERVATION, HOLDING NGS POINT NO. DY0238.

BENCH MARK
THE ELEVATIONS SHOWN HEREON ARE BASED UPON NGS POINT NO. DY0238, ELEVATION = 118.58 FEET (NAV088)

DATES OF SURVEY
AUGUST 5, 2005
JUNE 14, 2006
JUNE 24, 2006

Legend

- MONITORING WELL
- LIGHT STANDARD
- TOP OF RIM
- TOP OF CASING
- STORM DRAIN MANHOLE
- CONCRETE

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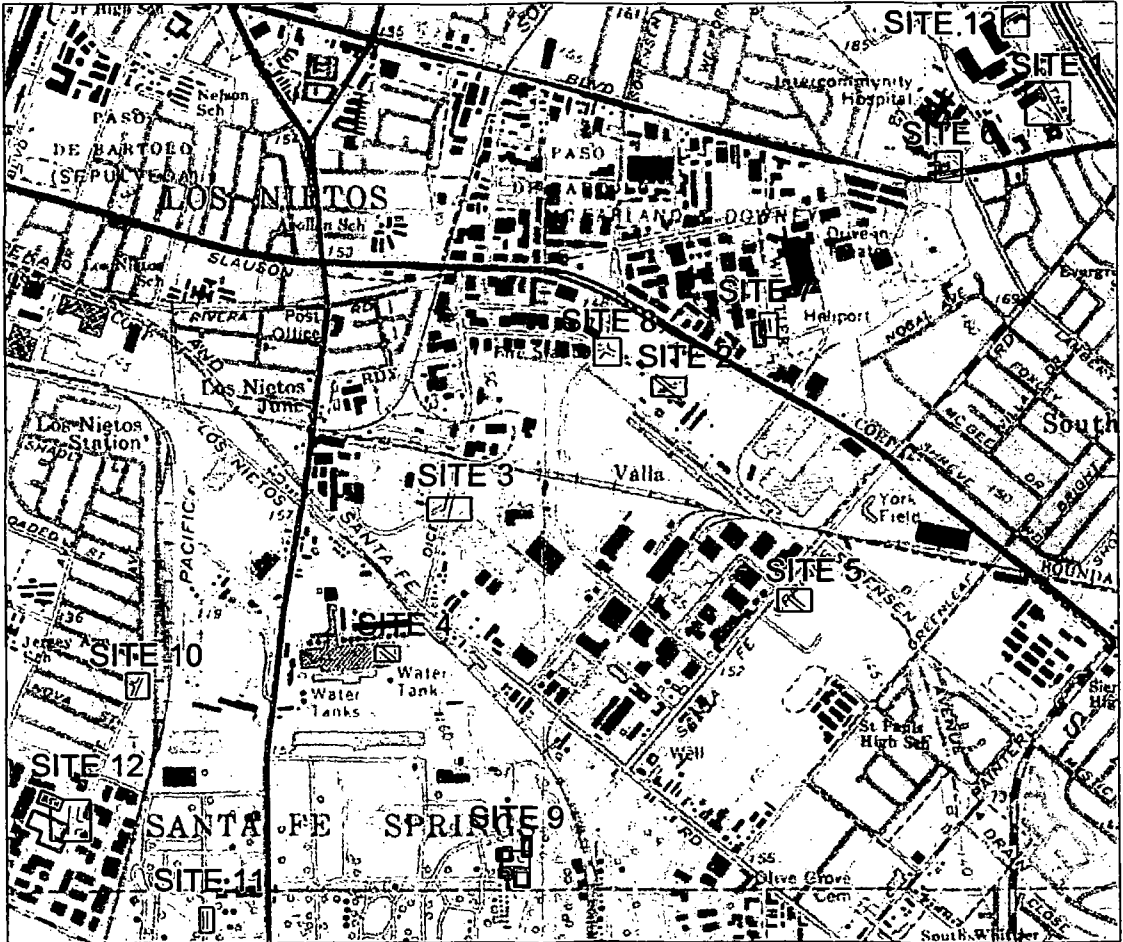
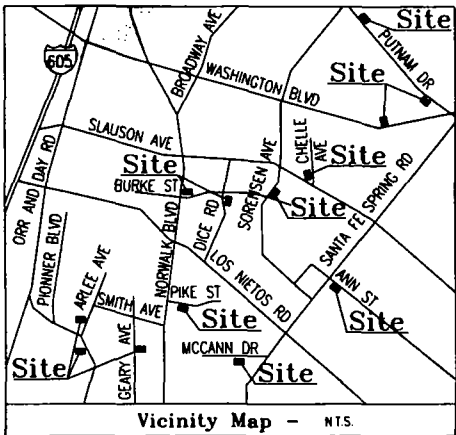
DATE	REVISION	BY
08/10/05	SUBMITTAL	MN
1 06/16/06	ADD WELLS	MN
2 06/26/06	ADD MW-12	MN
3 08/09/06	CLIENT'S COMMENTS	MN
4 08/16/06	CLIENT'S COMMENTS	MN
4 08/23/06	CLIENT'S COMMENTS	MN

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DATE: AUGUST 23, 2006 SHEET 2 OF 2

SITE PLAN MONITORING WELL LOCATIONS

SANTA FE SPRINGS, CA 90670



DATE OF SURVEY: AUGUST 5, 2005

WELL	MONITORING WELLS					TOR (ELEV.-FT)	TOC-A (ELEV.-FT)	TOC-B (ELEV.-FT)	TOC-C (ELEV.-FT)	TOC-D (ELEV.-FT)
	NORTH (UTM-11 METERS)	EAST (UTM-11 METERS)	LATITUDE (DD)	LONGITUDE (DD)						
MW-13	3759304.28	403429.28	33.9698410	-118.0453368	206.33	206.02	205.88			
MW-16	3757951.13	401492.78	33.9574593	-118.0661432	153.47	153.19	153.19	153.26		
MW-17	3757463.42	401264.18	33.9530399	-118.0685620	159.40	159.03	158.90	159.00		
MW-18	3757631.05	402590.55	33.9546753	-118.0542282	144.32	143.74	143.73	143.83		
MW-23	3758349.18	402203.78	33.9611151	-118.0584936	149.35		149.06	149.07	148.04	
QW-8B	3759212.72	403480.10	33.9690200	-118.0447767	201.43	200.81				

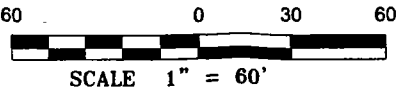
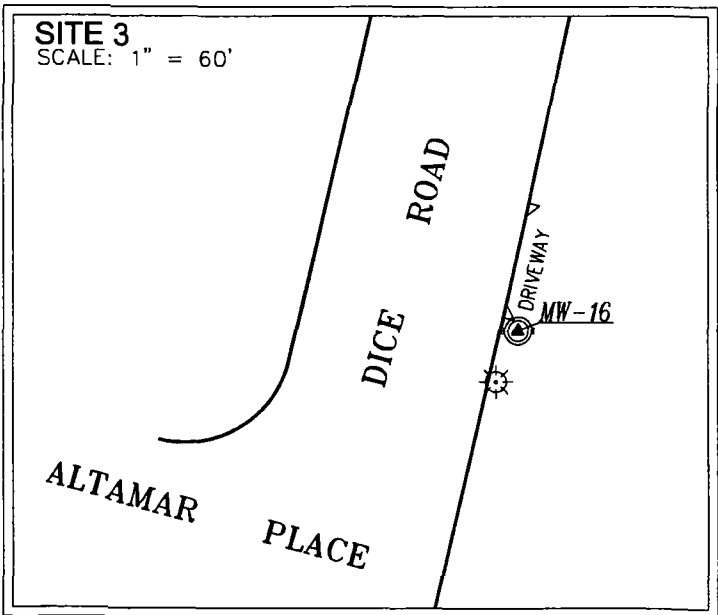
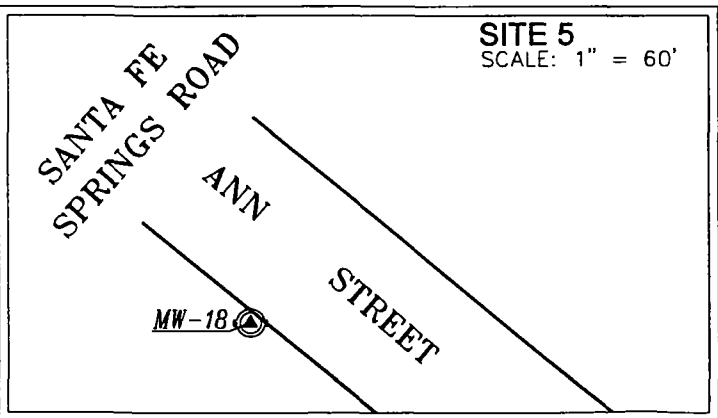
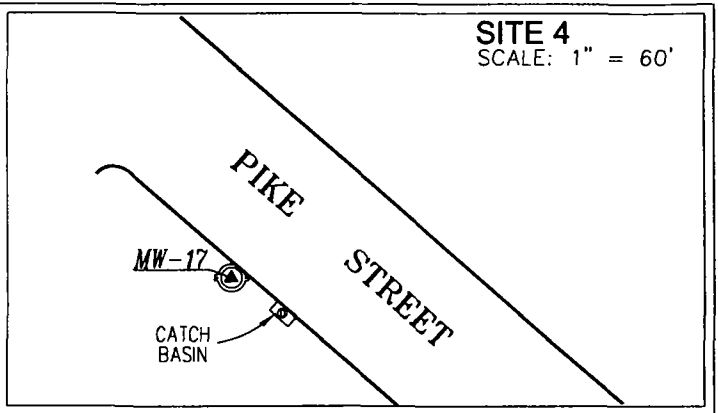
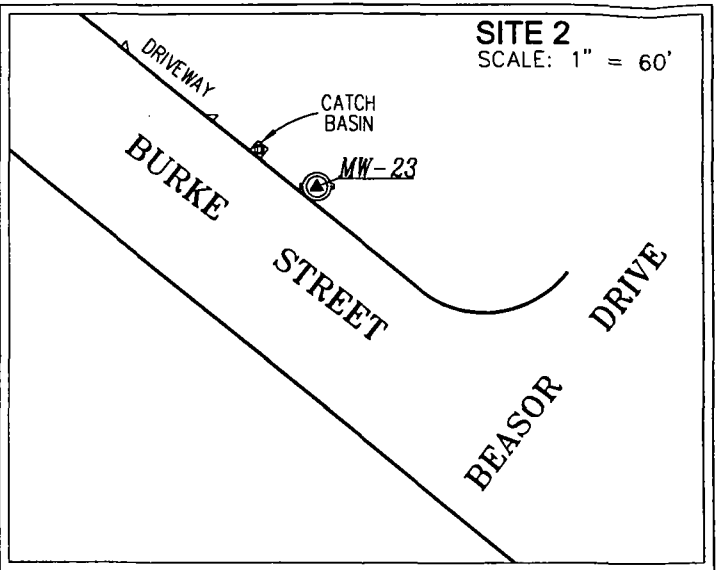
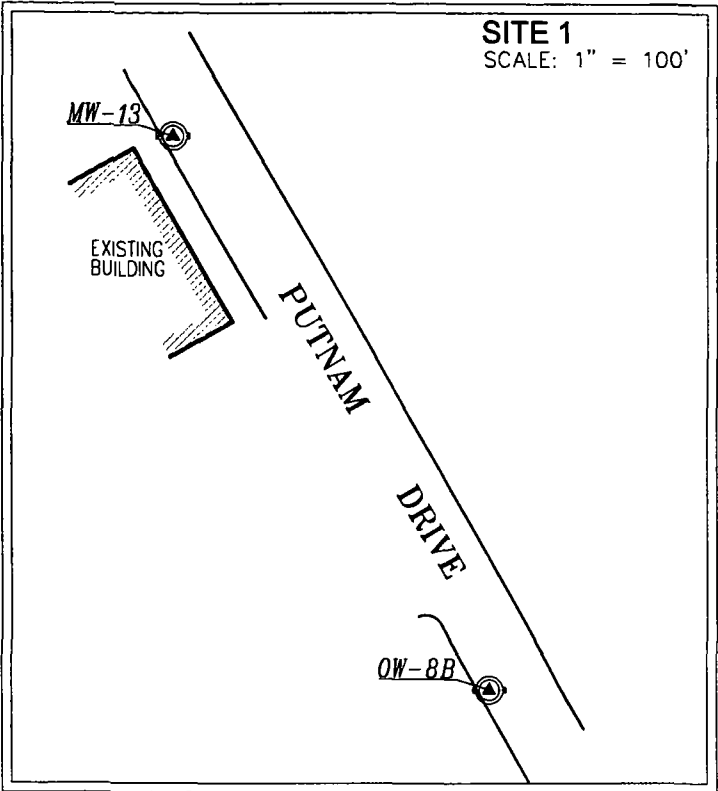
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ARCADIS - Los Angeles
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FULLERTON, CA 92835
(714) 278-0992
(714) 278-0051 Fax

	DATE	REVISION	BY
	08/10/05	SUBMITTAL	MN
1	06/16/06	ADD WELLS	MN
2	06/26/06	ADD MW-12	MN
3	08/09/06	CLIENT'S COMMENTS	MN
4	08/16/06	CLIENT'S COMMENTS	MN

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DATE: AUGUST 16, 2006 SHEET 1 OF 2



Legend

- Monitoring Well
- Light Standard
- Top of Rim
- Top of Casing
- Storm Drain Manhole
- Concrete

COORDINATES

THE COORDINATES SHOWN HEREON ARE BASED UPON THE UTM COORDINATE SYSTEM (NAD83), ZONE 11, METER, BASED UPON STATIC GPS OBSERVATION, HOLDING NGS POINT NO. DY0238.

BENCH MARK

THE ELEVATIONS SHOWN HEREON ARE BASED UPON NGS POINT NO. DY0238, ELEVATION = 118.58 FEET (NAVD83).

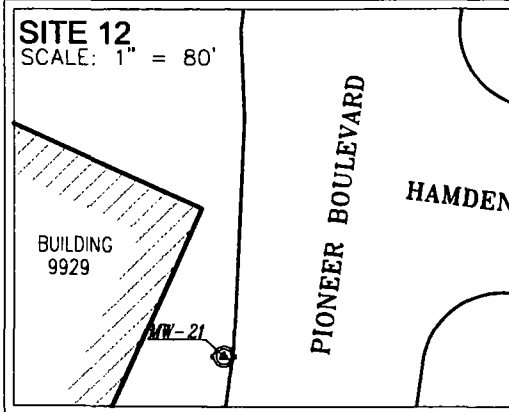
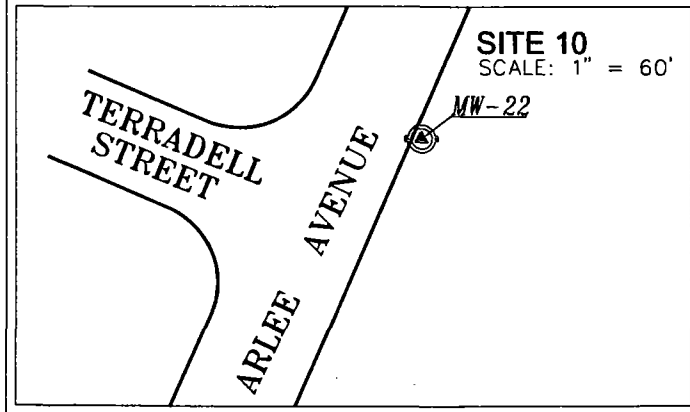
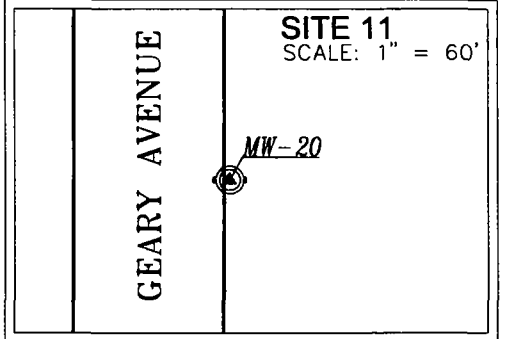
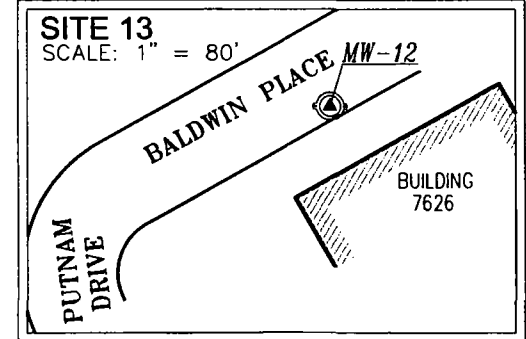
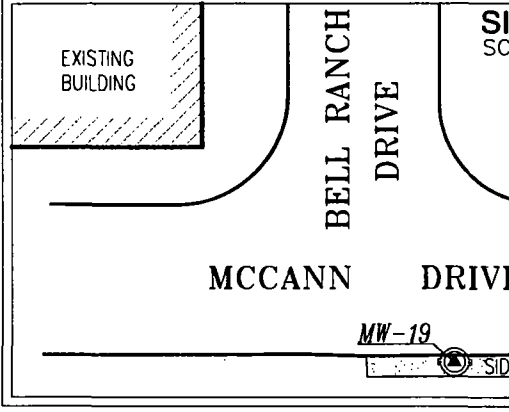
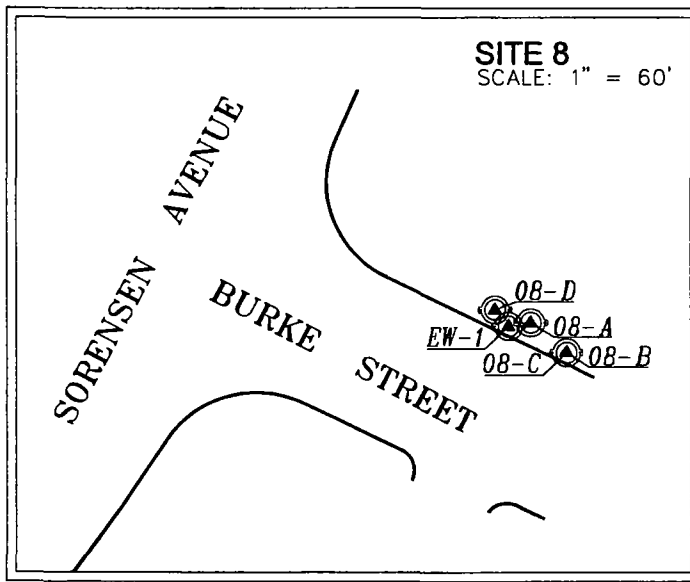
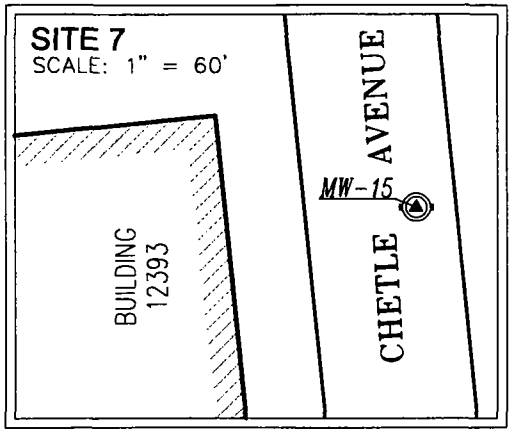
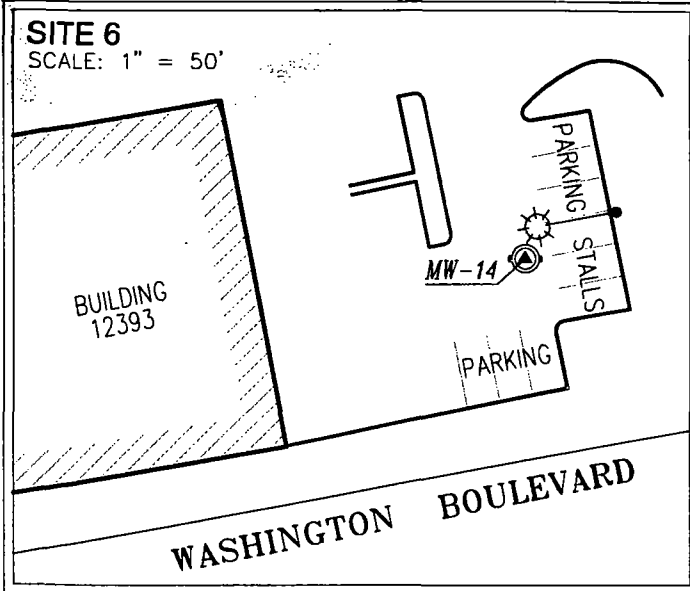
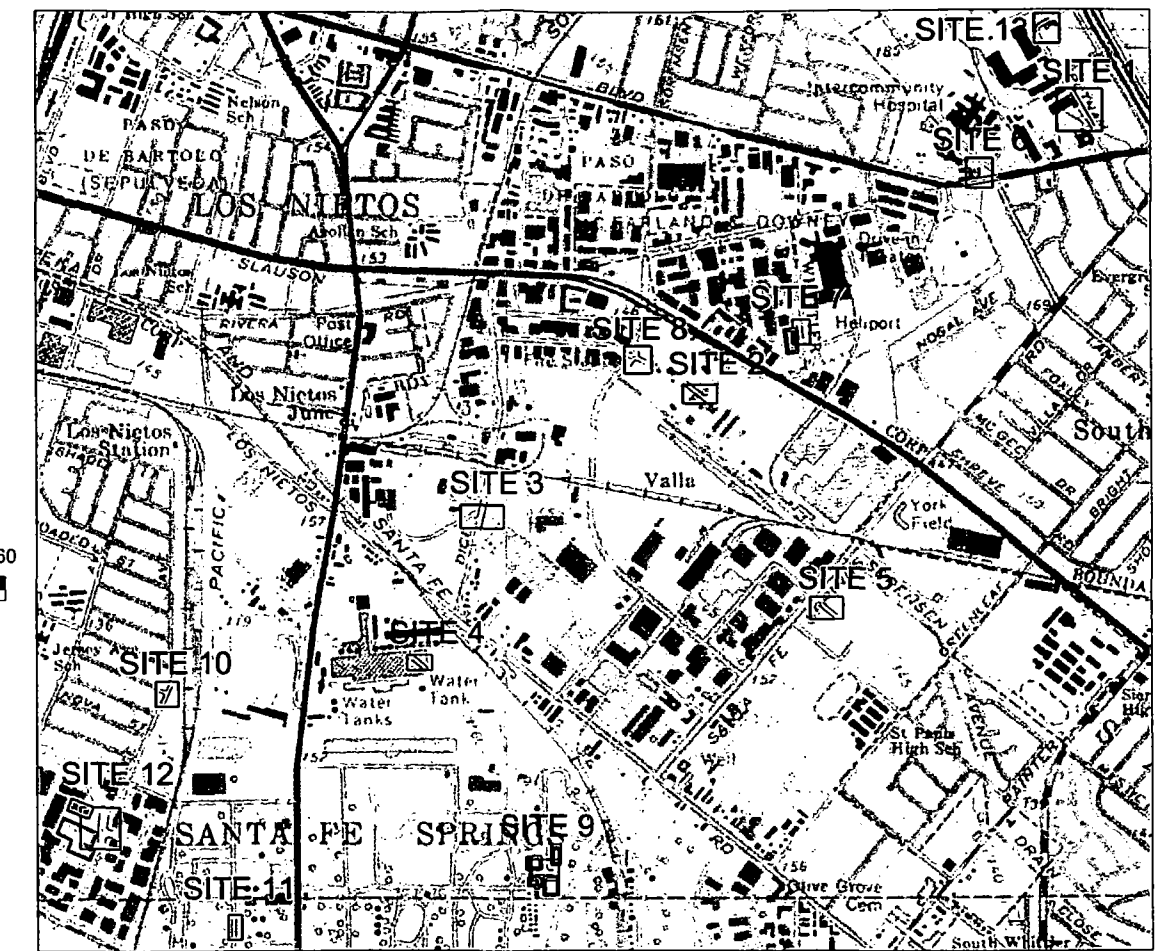
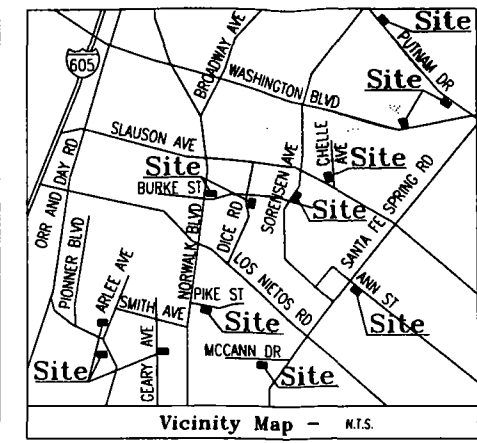
DATES OF SURVEY

AUGUST 5, 2005
JUNE 14, 2006

SITE PLAN

MONITORING WELL LOCATIONS

SANTA FE SPRINGS, CA 90670



COORDINATES

THE COORDINATES SHOWN HEREON ARE BASED UPON THE UTM COORDINATE SYSTEM (NAD83), ZONE 11, METER, BASED UPON STATIC GPS OBSERVATION, HOLDING NGS POINT NO. DY0238.

BENCH MARK

THE ELEVATIONS SHOWN HEREON ARE BASED UPON NGS POINT NO. DY0238, ELEVATION = 118.58 FEET (NAVD83).

DATES OF SURVEY

AUGUST 5, 2005
JUNE 14, 2006
JUNE 24, 2006

Legend

- MONITORING WELL
- ⊙ LIGHT STANDARD
- ⊙ TOP OF RIM
- ⊙ TOP OF CASING
- ⊙ STORM DRAIN MANHOLE
- CONCRETE

DATE OF SURVEY: JUNE 14, 2006

MONITORING WELLS												
WELL	NORTH (UTM-11 METERS)	EAST (UTM-11 METERS)	LATITUDE (DD)	LONGITUDE (DD)	TOR (ELEV.-FT)	FS/NG (ELEV.-FT)	TOC-A (ELEV.-FT)	TOC-B (ELEV.-FT)	TOC-C (ELEV.-FT)	RISER_HT-A	RISER_HT-B	RISER_HT-C
MW-13	3759304.29	403429.28	33.9698410	-118.0453368	206.34	206.30	206.01	205.87		-0.29	-0.43	
MW-14	3759053.87	403113.19	33.9675538	-118.0487301	172.97	172.98	172.63			-0.35		
MW-15	3758539.73	402532.68	33.9628639	-118.0549556	148.65	148.57	148.28			-0.29		
MW-19	3756760.85	401687.06	33.9467442	-118.0639072	159.01	158.94	158.73			-0.21		
MW-20	3756601.72	400670.84	33.9452137	-118.0748847	142.07	141.99	141.31	141.32	141.35	-0.68	-0.67	-0.64
MW-21	3756893.99	400223.26	33.9478069	-118.0797607	129.27	128.91	128.81			-0.10		
MW-22	3757381.90	400466.19	33.9522296	-118.0771876	151.47	151.36	150.82			-0.54		
EW-1	3758460.37	402022.79	33.9621008	-118.0604647	152.27	152.43	152.11			-0.32		
MW-08A	3758460.73	402024.99	33.9621043	-118.0604409	152.59	152.62	152.34			-0.28		
MW-08B	3758457.80	402028.55	33.9620782	-118.0604021	152.50	152.54	152.20			-0.34		
MW-08C	3758457.80	402028.55	33.9620782	-118.0604021	152.50	152.54	152.23			-0.31		
MW-08D	3758462.12	402021.54	33.9621165	-118.0604785	152.27	152.43	152.11			-0.32		

DATE OF SURVEY: JUNE 24, 2006

MONITORING WELLS												
WELL	NORTH (UTM-11 METERS)	EAST (UTM-11 METERS)	LATITUDE (DD)	LONGITUDE (DD)	TOR (ELEV.-FT)	FS/NG (ELEV.-FT)	TOC-A (ELEV.-FT)	TOC-B (ELEV.-FT)	TOC-C (ELEV.-FT)	RISER_HT-A	RISER_HT-B	RISER_HT-C
MW-12	3759544.05	403349.18	33.9719957	-118.0462302	220.53	221.23	220.87			-0.36		

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DATE	REVISION	BY
08/10/05	SUBMITTAL	MN
06/19/06	ADD WELLS	MN
06/26/06	ADD MW-12	MN
08/09/06	CLIENT'S COMMENTS	MN
08/16/06	CLIENT'S COMMENTS	MN

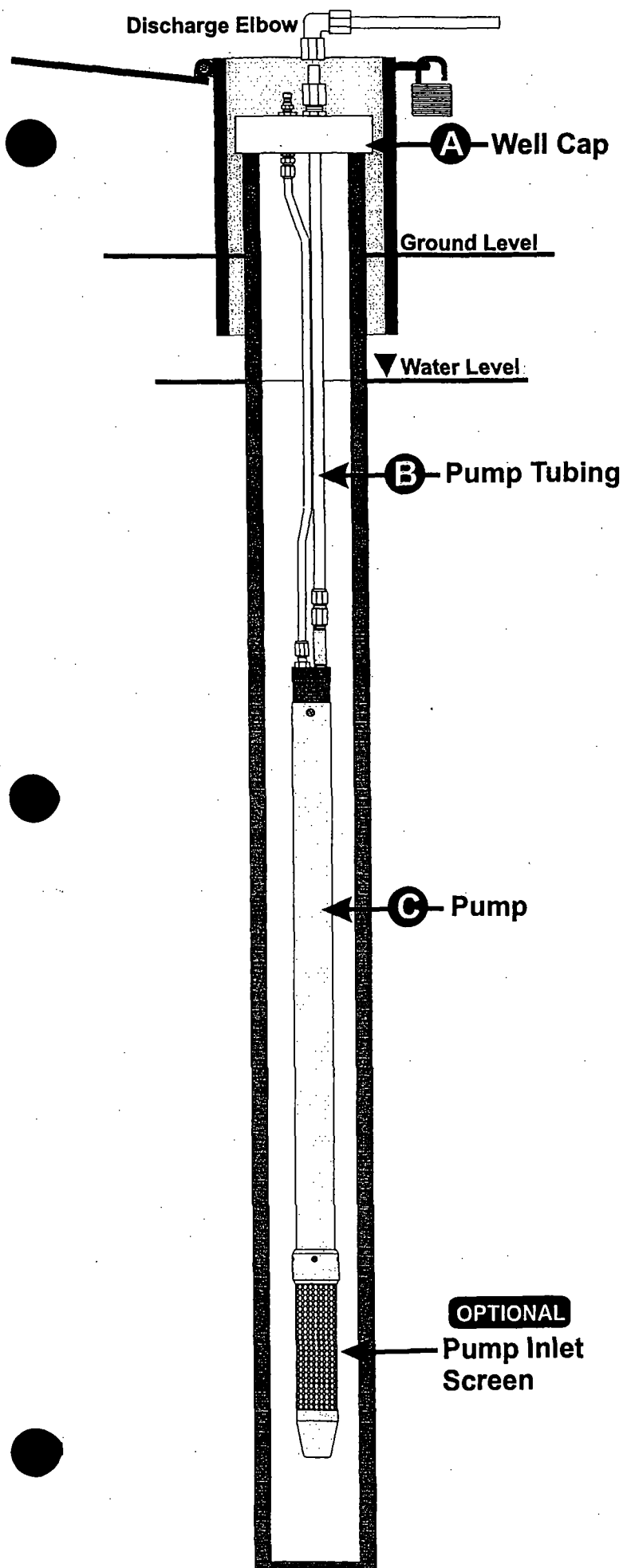
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DATE: AUGUST 16, 2006 SHEET 2 OF 2



ARCADIS

Appendix G

Dedicated Pump Placement



WELL WIZARD[®]

Dedicated Monitoring Systems

WELL SYSTEM "A"

BLADDER PUMP ONLY

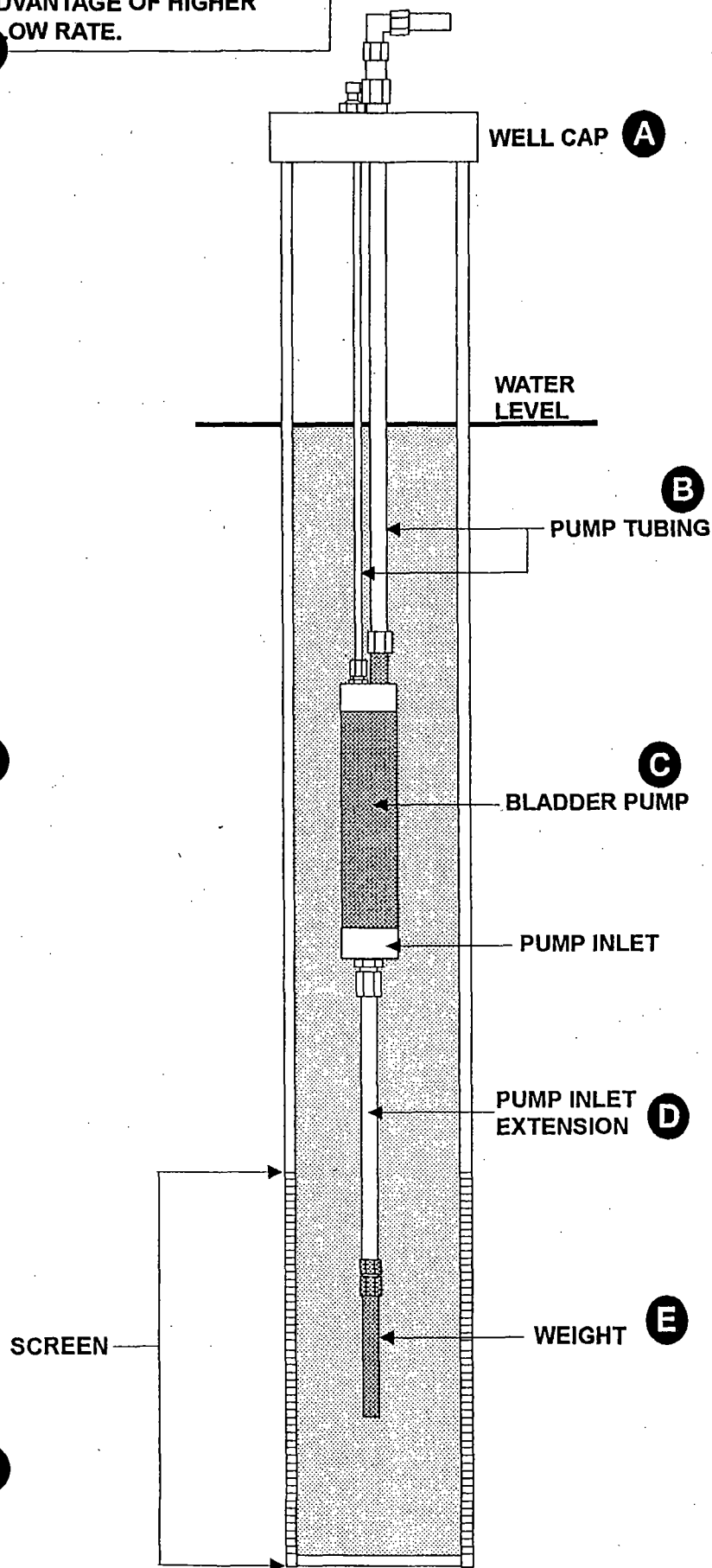
CheckList

- A Well Cap**
- B Bladder Pump Tubing**
- C Bladder Pump**

Options:

Pump Inlet Screen
Flex-Flo Discharge Adapter

DEEP HIGH RECOVERY WELL.
BLADDER PUMP WITH AN
INLET EXTENSION TO TAKE
ADVANTAGE OF HIGHER
FLOW RATE.



WELL WIZARD

WELL SYSTEM: **L**
TYPE

**BLADDER PUMP WITH AN
INLET EXTENSION**

CHECKLIST

A. WELL CAP

B. PUMP TUBING

C. BLADDER PUMP

D. PUMP INLET EXTENSION
TUBING

E. WEIGHT

Well Wizard (R) Specification Sheet

Rev Date: 7/5/2006

Customer: Arcadis
 Site/Location: Omega Chemical OU-2 Project # CA000646.0001
 Date: Sept 12, 2005
 Salesperson: DLC / GL

Well ID No.	MW12	MW13B	MW14	MW15	MW16A	MW16B
Well System Type	A	A	A	A	A	A
Well Diameter (Inches)	2	2	2	2	2	2
Well Depth	102	138	80	75	65	121
Static Water Level	82.9	81.85	46.2	25.75	48.03	48.9
Water Column Height	19.1	56.15	33.8	49.25	16.97	72.1
Top of Screen	82	123	60	50	45	106
Bottom of Screen	97	133	75	70	60	116
Sample Collection Point (ft-btoc)	96	128	74.0	69	59	111
Cap Model	C26S	C26S	C26S	C26S	C26S	C26S
Elbow/Flex Flow Model	37740	37740	37740	37740	37740	37740
Tubing Stick-up Above Cap (included in total tube length)	0	0	0	0	0	0
Bladder Pump Model	T1200M	T1200M	T1200M	T1200M	T1200M	T1200M
Bladder Pump Inlet Screen	35200	35200	35200	35200	35200	35200
Pump Submergence	13.10	46.15	27.80	43.25	10.97	62.10
Bladder Pump Tubing Model	PT5000	PT5000	PT5000	PT5000	PT5000	PT5000
Bladder Pump Tubing Length	92.5	124.5	70.5	65.5	55.5	107.5
Drop Tube Kit						
Drop Tubing Model						
Drop Tubing Length						
Drop Tube Inlet Screen						
Add'l Drop Tube Weight Model						
Total QTY Drop Tube Weights						
Single system purge volume (ml)	1329	1633	1120	1072	977	1471

APPROVAL:

Signature: _____

Date: _____

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Well Wizard (R) Specification Sheet

Rev Date: 7/5/2006

Customer: Arcadis

Site/Location: Omega Chemical OU-2 Project # CA000646.0001

Date: Sept 12, 2005

Salesperson: DLC / GL

Well ID No.	MW16C	MW17B	MW17C	MW18A	MW18B	MW18C
Well System Type	L	A	L	A	A	L
Well Diameter (Inches)	2	2	2	2	2	2
Well Depth	169	109	187	76	105	166
Static Water Level	50.78	65.95	73.24	27.93	27.88	29.58
Water Column Height	118.22	43.05	113.76	48.07	77.12	136.42
Top of Screen	149	94	172	56	90	146
Bottom of Screen	164	104	182	71	100	161
Sample Collection Point (ft-btoc)	156	99	177	70	95	154
Cap Model	C26S	C26S	C26S	C26S	C26S	C26S
Elbow/Flex Flow Model	37740	37740	37740	37740	37740	37740
Tubing Stick-up Above Cap (included in total tube length)	0	0	0	0	0	0
Bladder Pump Model	T1200M	T1200M	T1200M	T1200M	T1200M	T1200M
Bladder Pump Inlet Screen		35200		35200	35200	
Pump Submergence	30.00	33.05	30.00	42.07	67.12	30.00
Bladder PumpTubing Model	PT5000	PT5000	PT5000	PT5000	PT5000	PT5000
Bladder Pump Tubing Length	80.8	95.5	103.2	66.5	91.5	59.6
Drop Tube Kit	37757		37757			37757
Drop Tubing Model	35374		35374			35374
Drop Tubing Length	69.72		68.26			88.92
Drop Tube Inlet Screen	38850		38850			38850
Add'l Drop Tube Weight Model						
Total QTY Drop Tube Weights	1		1			1
Single system purge volume (ml)	1918	1357	2117	1082	1319	1899

APPROVAL:

Signature: _____

Date: _____

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Well Wizard (R) Specification Sheet

Rev Date: 7/5/2006

Customer: Arcadis
 Site/Location: Omega Chemical OU-2 Project # CA000646.0001
 Date: Sept 12, 2005
 Salesperson: DLC / GL

Well ID No.	MW20A	MW20B	MW20C	MW21	MW22	MW23B
Well System Type	A	A	L	A	A	A
Well Diameter (Inches)	2	2	2	2	2	2
Well Depth	95	137	195	84	94	102
Static Water Level	67.28	67.55	76	49.78	61.8	29.5
Water Column Height	27.72	69.45	119	34.22	32.2	72.5
Top of Screen	75	122	180	64	74	87
Bottom of Screen	90	132	190	79	89	97
Sample Collection Point (ft-btoc)	89.0	128	185	78.0	88.0	92
Cap Model	C26S	C26S	C26S	C26S	C26S	C26S
Elbow/Flex Flow Model	37740	37740	37740	37740	37740	37740
Tubing Stick-up Above Cap (included in total tube length)	0	0	0	0	0	0
Bladder Pump Model	T1200M	T1200M	T1200M	T1200M	T1200M	T1200M
Bladder Pump Inlet Screen	35200	35200		35200	35200	35200
Pump Submergence	21.72	60.45	30.00	28.22	26.20	62.50
Bladder PumpTubing Model	PT5000	PT5000	PT5000	PT5000	PT5000	PT5000
Bladder Pump Tubing Length	85.5	124.5	106.0	74.5	84.5	88.5
Drop Tube Kit			37757			
Drop Tubing Model			35374			
Drop Tubing Length			73.5			
Drop Tube Inlet Screen			36630			
Add'l Drop Tube Weight Model						
Total QTY Drop Tube Weights			1			
Single system purge volume (ml)	1262	1633	2193	1158	1253	1291

APPROVAL:

Signature: _____

Date: _____

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Well Wizard (R) Specification Sheet

Rev Date: 7/5/2006

Customer: Arcadis
 Site/Location: Omega Chemical OU-2 Project # CA000646.0001
 Date: Sept 12, 2005
 Salesperson: DLC / GL

Well ID No.	MW23C	MW23D				
Well System Type	L	L				
Well Diameter (Inches)	2	2				
Well Depth	165	190				
Static Water Level	32.35	33.15				
Water Column Height	132.65	156.85				
Top of Screen	145	175				
Bottom of Screen	160	185				
Sample Collection Point (ft-btoc)	159	182				
Cap Model	C26S	C26S				
Elbow/Flex Flow Model	37740	37740				
Tubing Stick-up Above Cap (included in total tube length)	0	0				
Bladder Pump Model	T1200M	T1200M				
Bladder Pump Inlet Screen						
Pump Submergence	30.00	30.00				
Bladder Pump Tubing Model	PT5000	PT5000				
Bladder Pump Tubing Length	62.4	63.2				
Drop Tube Kit	37757	37757				
Drop Tubing Model	35374	35374				
Drop Tubing Length	91.15	111.35				
Drop Tube Inlet Screen	36630	36630				
Add'l Drop Tube Weight Model		35415				
Total QTY Drop Tube Weights	1	2				
Single system purge volume (ml)	1946	2184				

APPROVAL:

Signature: _____

Date: _____

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ARCADIS

Appendix H

Well Purge Logs and Sample
ID Logs



ARCADIS

Low Flow Groundwater Sampling Form

Project Name Omega Chem.
Project Number CH000646.0001.00014
Field Personnel V. Salazar

WELL ID# MW-12
Date 7/6/06

Screened Interval 82-97'

Casing Type: PVC

St. Steel

Other

Peristaltic pump tubing inlet depth 96'

Diameter (inches) 2

Static Water Level 82.97' Allowable drawdown:
25% (96-83) = 3.25 ft

Volumes Purged

Time	Minutes Elapsed	DTW	Rate (gpm)(ML)	Volume Purged	pH	Cond. (mS/cm) (umhos/cm)	ORP (mV)	DO (%)	DO (mg/l)	TEMP. (°F / °C)	REMARKS
9:53	0	82.97	280	290	—	—	—	—	—	—	Computer ID 99
9:56	3	83.86	280		—	—	—	—	—	—	12 Refill
9:59	6	84.95	280								3 Discharge
10:02	9	85.33	280								8 psi
10:05	12	85.78	200								Flow 100 ml/min.
10:08	15	86.10	165								
10:11	18	86.20	100								
10:14	21	86.37	100								
10:17	24	86.57	100								
10:23		86.76	80		7.09	1.289		19.8	1.65	23.93	
10:26		86.89	80		7.07	1.288		19.9	1.65	23.99	
10:29		86.98	80		7.06	1.286		20.7	1.71	24.37	
10:32		87.09	80		7.05	1.285		21.4	1.77	24.49	
11:12		88.67									
MP20 data						1.291		20.6			
10:28					7.07	1.291		20.6	1.72	23.90	
10:33					7.07	1.287		20.4	1.69	24.27	
10:38					7.07	1.284		22.0	1.81	24.59	
10:43					7.04	1.293		20.5	1.67	25.09	
10:48					7.05	1.292		19.3	1.56	25.63	
10:53					7.05	1.299		19.2	1.57	26.39	
10:58					7.05	1.305		19.1	1.50	27.19	

PURGING EQUIPMENT	
<input type="checkbox"/>	2" BLADDER PUMP
<input type="checkbox"/>	CENTRIFUGAL PUMP
<input type="checkbox"/>	SUBMERSIBLE PUMP
<input type="checkbox"/>	VACUUM TRUCK
<input checked="" type="checkbox"/>	DEDICATED PUMP
<input type="checkbox"/>	OTHER (SPECIFY)

SAMPLING EQUIPMENT	
<input type="checkbox"/>	PUMP
<input type="checkbox"/>	TEFLON BAILER
<input type="checkbox"/>	SS BAILER
<input type="checkbox"/>	DISPOS. BAILER
<input type="checkbox"/>	DDL SAMPLER
<input type="checkbox"/>	OTHER (SPECIFY):

FIELD TEST KITS	
<input type="checkbox"/>	DO
<input type="checkbox"/>	FE ²⁺
<input type="checkbox"/>	H ₂ S
<input type="checkbox"/>	
<input type="checkbox"/>	

REMARKS/COMMENTS 3.25' allowable drawdown. DTW 90.5 @ 11:41 am.
max drawdown 7.53 > allowed. Had reduced flow to 80 ml/min.
Recommended passive sampling

COMPLETED BY Ron Halperin/Vment

REVIEWED BY Ron Halperin

SIGNATURE

DATE



Project Name Omega Chem OU-2
Project Number CA 000 646.000/
Field Personnel RMB, Vincent

WELL ID# 133

Date 7/6/06

Screened Interval 123-133

Casing Type: PVC

	St. Steel	Other
1970-71	68.0	32.0
1971-72	68.0	32.0
1972-73	68.0	32.0
1973-74	68.0	32.0
1974-75	68.0	32.0
1975-76	68.0	32.0
1976-77	68.0	32.0
1977-78	68.0	32.0
1978-79	68.0	32.0
1979-80	68.0	32.0
1980-81	68.0	32.0
1981-82	68.0	32.0
1982-83	68.0	32.0
1983-84	68.0	32.0
1984-85	68.0	32.0
1985-86	68.0	32.0
1986-87	68.0	32.0
1987-88	68.0	32.0
1988-89	68.0	32.0
1989-90	68.0	32.0
1990-91	68.0	32.0
1991-92	68.0	32.0
1992-93	68.0	32.0
1993-94	68.0	32.0
1994-95	68.0	32.0
1995-96	68.0	32.0
1996-97	68.0	32.0
1997-98	68.0	32.0
1998-99	68.0	32.0
1999-00	68.0	32.0
2000-01	68.0	32.0
2001-02	68.0	32.0
2002-03	68.0	32.0
2003-04	68.0	32.0
2004-05	68.0	32.0
2005-06	68.0	32.0
2006-07	68.0	32.0
2007-08	68.0	32.0
2008-09	68.0	32.0
2009-10	68.0	32.0
2010-11	68.0	32.0
2011-12	68.0	32.0
2012-13	68.0	32.0
2013-14	68.0	32.0
2014-15	68.0	32.0
2015-16	68.0	32.0
2016-17	68.0	32.0
2017-18	68.0	32.0
2018-19	68.0	32.0
2019-20	68.0	32.0
2020-21	68.0	32.0
2021-22	68.0	32.0
2022-23	68.0	32.0
2023-24	68.0	32.0
2024-25	68.0	32.0
2025-26	68.0	32.0
2026-27	68.0	32.0
2027-28	68.0	32.0
2028-29	68.0	32.0
2029-30	68.0	32.0
2030-31	68.0	32.0
2031-32	68.0	32.0
2032-33	68.0	32.0
2033-34	68.0	32.0
2034-35	68.0	32.0
2035-36	68.0	32.0
2036-37	68.0	32.0
2037-38	68.0	32.0
2038-39	68.0	32.0
2039-40	68.0	32.0
2040-41	68.0	32.0
2041-42	68.0	32.0
2042-43	68.0	32.0
2043-44	68.0	32.0
2044-45	68.0	32.0
2045-46	68.0	32.0
2046-47	68.0	32.0
2047-48	68.0	32.0
2048-49	68.0	32.0
2049-50	68.0	32.0
2050-51	68.0	32.0
2051-52	68.0	32.0
2052-53	68.0	32.0
2053-54	68.0	32.0
2054-55	68.0	32.0
2055-56	68.0	32.0
2056-57	68.0	32.0
2057-58	68.0	32.0
2058-59	68.0	32.0
2059-60	68.0	32.0
2060-61	68.0	32.0
2061-62	68.0	32.0
2062-63	68.0	32.0
2063-64	68.0	32.0
2064-65	68.0	32.0
2065-66	68.0	32.0
2066-67	68.0	32.0
2067-68	68.0	32.0
2068-69	68.0	32.0
2069-70	68.0	32.0
2070-71	68.0	32.0
2071-72	68.0	32.0
2072-73	68.0	32.0
2073-74	68.0	32.0
2074-75	68.0	32.0
2075-76	68.0	32.0
2076-77	68.0	32.0
2077-78	68.0	32.0
2078-79	68.0	32.0
2079-80	68.0	32.0
2080-81	68.0	32.0
2081-82	68.0	32.0
2082-83	68.0	

Peristaltic pump tubing inlet depth 128

Diameter (inches) 2"

Static Water Level 80.65

Allowable drawdown:
 $25\% (128 - 123) = 1.25 \text{ ft}$

Volumes Purged

[illegible]

Stability
increases
to Flow
cell units

PURGING EQUIPMENT	
1	2" BLADDER PUMP
	CENTRIFUGAL PUMP
	SUBMERSIBLE PUMP
	VACUUM TRUCK
2	DEDICATED PUMP
	OTHER (SPECIFY)

SAMPLING EQUIPMENT	
	PUMP
	TEFLON BAILER
	SS BAILER
	DISPOS. BAILER
	DDL SAMPLER
✓	OTHER (SPECIFY):

FIELD TEST KITS		
Test	Concentration (mg/L)	Time
DO		
FE ²⁺		
H ₂ S		

REMARKS/COMMENTS Computes 12.102 Recharge 10.5 Discharge 4.5 Flow 600
TP = 80 psi

COMPLETED BY KMH

REVIEWED BY

SIGNATURE _____

DATE _____



g:\common\FORMS\PURGE LOG - LOWFLOW



OC2-AMW15-0-17

WELL ID# MW-15

Date 7-10-08

Date 7-10-08

Casing Type: ☒ PVC ☐ St. Steel ☐ Other

Diameter (inches) 2

max drawdown = $19' \times 0.25 \approx 4.8'$
4.5

max Drawdown: $24.59 - 24.38 = 0.21 < 4.59$ - OK

SAMPLING EQUIPMENT	
	PUMP
	TEFLON BAILER
	SS BAILER
	DISPOS. BAILER
	DDL SAMPLER
	OTHER (SPECIFY):

FIELD TEST KITS		
Test	Concentration (mg/L)	Time
DO		
FE ²⁺		
H ₂ S		

REMARKS/COMMENTS NITANK PI=2,000mi PR=1850 LINKP=120
MPI0SETting = 4 Throttle P = 50 REFILL=10.0 Discharge=5.0
TD=103 RPM=4

REVIEWED BY Fen H

DATE _____

Low Flow Groundwater Sampling Form

Project Name OMEGA CHEMICAL
 Project Number CA000646.0001
 Field Personnel VINCE / BILL

WELL ID# MW-16A
 Date 7-11-06

Screened Interval 45-60

Casing Type: PVC

St. Steel Other _____

Peristaltic pump tubing inlet depth 59'

Diameter (inches) 2

Static Water Level 45.70 max allowable drawdown:
 $0.25 \times (59 - 45.7) = 2.09 \text{ ft}$

Volumes Purged _____

Time	Minutes Elapsed	DTW	Rate (gpm)(ML)	Volume Purged	pH	Cond. (mS/cm) (umhos/cm)	ORP (mV)	DO (%)	DO (mg/l)	TEMP. (°F / °C)	REMARKS
8:30	0	45.70	400								
Stop		59.12									40% of drawdown
8:54	✓	59.2-59.03	200		6.97	3.70	38	40.1	3.42	22.35	
9:02	(3)	59.0-59.03	200								
9:05	(6)	59.03-59.06	200		6.95	3.71	39	32.6	2.81	21.66	
9:08	(9)	59.03-59.06	200		6.93	3.72	39	30.9	2.66	21.63	
9:11	(12)	59.03-59.06	200		6.96	3.70	38	30.6	2.63	21.61	
9:04					6.95	3.71	39	33.8	2.92	21.65	
9:09					6.94	3.71	39	30.6	2.66	21.63	
Max Drawdown: $59.06 - 45.70 = 8.36 > 2.09 \text{ ft}$ - Not acceptable.											

PURGING EQUIPMENT	
<input type="checkbox"/>	2" BLADDER PUMP
<input type="checkbox"/>	CENTRIFUGAL PUMP
<input type="checkbox"/>	SUBMERSIBLE PUMP
<input type="checkbox"/>	VACUUM TRUCK
<input checked="" type="checkbox"/>	DEDICATED PUMP
<input type="checkbox"/>	OTHER (SPECIFY)

SAMPLING EQUIPMENT	
<input type="checkbox"/>	PUMP
<input type="checkbox"/>	TEFLON BAILER
<input type="checkbox"/>	SS BAILER
<input type="checkbox"/>	DISPOS. BAILER
<input type="checkbox"/>	DDL SAMPLER
<input type="checkbox"/>	OTHER (SPECIFY):

FIELD TEST KITS		
Test	Concentration (mg/L)	Time
DO		
FE ²⁺		
H ₂ S		

REMARKS/COMMENTS Tank P = 2000 psi P_A = 2,050 psi Line P = 120 psi
Throttle P = 30 psi Refill = 10.0 sec Discharge = 50 sec ID = 103 CPM 4
Dropping flow rate. DTW below Drawdown was exceeded, but DTW & parameters stabilized.
 COMPLETED BY *Recommend positive sampling in future REVIEWED BY [Signature]

SIGNATURE _____

DATE _____



q:\common\FORMS\LOWFLO



Project Name Omega Chemical
Project Number 676-D-14
Field Personnel T. Jalarzer / B. Singhava

WELL ID# 14118C MW-16C
Date 7/11

Screened Interval 149-164'

Casing Type:

PVC

St. Steel

Other

Peristaltic pump tubing inlet depth 156'

Diameter (inches) 2

Static Water Level 48.88'

max Allowed drawdown:
 $0.25 \times (156 - 149) = 1.75 \text{ ft}$

Volumes Purged

[illegible]

PURGING EQUIPMENT	
	2" BLADDER PUMP
	CENTRIFUGAL PUMP
	SUBMERSIBLE PUMP
	VACUUM TRUCK
<input checked="" type="checkbox"/>	DEDICATED PUMP
	OTHER (SPECIFY)

SAMPLING EQUIPMENT	
	PUMP
	TEFLON BAILER
	SS BAILER
	DISPOS. BAILER
	DDL SAMPLER
α	OTHER (SPECIFY):

FIELD TEST KITS		
Test	Concentration (mg/L)	Time
DO		
FE ²⁺		
H ₂ S		

REMARKS/COMMENTS Tank $P_T = 1900$ psia $P_R = 1,800$ psia Line $P = 120$ psia
Throttle = 60 psia Refill = 10.0 sec Discharge = 5.0 sec IP = 103 CPM 4

COMPLETED BY _____

REVIEWED BY 

SIGNATURE _____

DATE _____



Project Name Omega Chemical
Project Number 676.D1.14
Field Personnel V. Salazar / B. Slingbaum

WELL ID# NW-17A

Date 7/2/07

Screened Interval 56-71

Casing Type: { PVC

St. Steel	Other

Peristaltic pump tubing inlet depth No PumpDiameter (inches) 2

Static Water Level 64.40 (TDC)

Volumes Purged_____

PURGING EQUIPMENT	
	2" BLADDER PUMP
	CENTRIFUGAL PUMP
	SUBMERSIBLE PUMP
	VACUUM TRUCK
	DEDICATED PUMP
X	OTHER (SPECIFY) <i>low</i>

SAMPLING EQUIPMENT	
	PUMP
	TEFLON BAILER
	SS BAILER
✓	DISPOS. BAILER
	DDL SAMPLER
	OTHER (SPECIFY):

FIELD TEST KITS		
Test	Concentration (mg/L)	Time
DO		
FE ²⁺		
H ₂ S		

REMARKS/COMMENTS TD = 75.36' (TOC) 11' of standing water. 1.85 gallon one well w/une.
Poised ~ 2.5 gallons before running dry. 66.5' before sampling (80% recharge)

COMPLETED BY _____

REVIEWED BY

SIGNATURE _____

DATE _____



Project Name Omega
Project Number CA000646.01.14
Field Personnel V. Salazar / Bill Slingsbaum.

WELL ID# NW-17B

Date 7/12/06

Screened Interval 94-104

Casing Type: (PVC

	St. Steel	Other
1970-71	86.0	14.0
1971-72	86.0	14.0
1972-73	86.0	14.0
1973-74	86.0	14.0
1974-75	86.0	14.0
1975-76	86.0	14.0
1976-77	86.0	14.0
1977-78	86.0	14.0
1978-79	86.0	14.0
1979-80	86.0	14.0
1980-81	86.0	14.0
1981-82	86.0	14.0
1982-83	86.0	14.0
1983-84	86.0	14.0
1984-85	86.0	14.0
1985-86	86.0	14.0
1986-87	86.0	14.0
1987-88	86.0	14.0
1988-89	86.0	14.0
1989-90	86.0	14.0
1990-91	86.0	14.0
1991-92	86.0	14.0
1992-93	86.0	14.0
1993-94	86.0	14.0
1994-95	86.0	14.0
1995-96	86.0	14.0
1996-97	86.0	14.0
1997-98	86.0	14.0
1998-99	86.0	14.0
1999-00	86.0	14.0
2000-01	86.0	14.0
2001-02	86.0	14.0
2002-03	86.0	14.0
2003-04	86.0	14.0
2004-05	86.0	14.0
2005-06	86.0	14.0
2006-07	86.0	14.0
2007-08	86.0	14.0
2008-09	86.0	14.0
2009-10	86.0	14.0
2010-11	86.0	14.0
2011-12	86.0	14.0
2012-13	86.0	14.0
2013-14	86.0	14.0
2014-15	86.0	14.0
2015-16	86.0	14.0
2016-17	86.0	14.0
2017-18	86.0	14.0
2018-19	86.0	14.0
2019-20	86.0	14.0
2020-21	86.0	14.0
2021-22	86.0	14.0
2022-23	86.0	14.0
2023-24	86.0	14.0
2024-25	86.0	14.0
2025-26	86.0	14.0
2026-27	86.0	14.0
2027-28	86.0	14.0
2028-29	86.0	14.0
2029-30	86.0	14.0
2030-31	86.0	14.0
2031-32	86.0	14.0
2032-33	86.0	14.0
2033-34	86.0	14.0
2034-35	86.0	14.0
2035-36	86.0	14.0
2036-37	86.0	14.0
2037-38	86.0	14.0
2038-39	86.0	14.0
2039-40	86.0	14.0
2040-41	86.0	14.0
2041-42	86.0	14.0
2042-43	86.0	14.0
2043-44	86.0	14.0
2044-45	86.0	14.0
2045-46	86.0	14.0
2046-47	86.0	14.0
2047-48	86.0	14.0
2048-49	86.0	14.0
2049-50	86.0	14.0
2050-51	86.0	14.0
2051-52	86.0	14.0
2052-53	86.0	14.0
2053-54	86.0	14.0
2054-55	86.0	14.0
2055-56	86.0	14.0
2056-57	86.0	14.0
2057-58	86.0	14.0
2058-59	86.0	14.0
2059-60	86.0	14.0
2060-61	86.0	14.0
2061-62	86.0	14.0
2062-63	86.0	14.0
2063-64	86.0	14.0
2064-65	86.0	14.0
2065-66	86.0	14.0
2066-67	86.0	14.0
2067-68	86.0	14.0
2068-69	86.0	14.0
2069-70	86.0	14.0
2070-71	86.0	14.0
2071-72	86.0	14.0
2072-73	86.0	14.0
2073-74	86.0	14.0
2074-75	86.0	14.0
2075-76	86.0	14.0
2076-77	86.0	14.0
2077-78	86.0	14.0
2078-79	86.0	14.0
2079-80	86.0	14.0
2080-81	86.0	14.0
2081-82	86.0	14.0
2082-83	86.0	

Peristaltic pump tubing inlet depth 99'

Diameter (inches) 2

Static Water Level 63.52

$$\text{Max Allowed DD} = 0.25 \times (99 - 94) = 1.25 \text{ ft}$$

Volumes Purged _____

[illegible]

PURGING EQUIPMENT	
	2" BLADDER PUMP
	CENTRIFUGAL PUMP
	SUBMERSIBLE PUMP
	VACUUM TRUCK
X	DEDICATED PUMP
	OTHER (SPECIFY)

SAMPLING EQUIPMENT	
	PUMP
	TEFLON BAILER
	SS BAILER
	DISPOS. BAILER
	DDL SAMPLER
X	OTHER (SPECIFY):

FIELD TEST KITS		
Test	Concentration (mg/L)	Time
DO		
FE ²⁺		
H ₂ S		

REMARKS/COMMENTS

Tank $P_i = 1,100 \text{ psi}$ $P_E = 1,000$

Line. $P = 125 \text{ psi}$

Throttle = 60 psi

Ec. =

$$D_{i2} = 5.0$$

② ID = 103 CPM 4

COMPLETED BY

REVIEWED BY

SIGNATURE

DATE _____



Project Name Omega Chen
Project Number CR000646.01 014
Field Personnel V. Salazar/Bill Shingbarger

WELL ID# MW-17C

Date 7/12/06

Screened Interval 72-182

Casing Type: PVC

St. Steel	Other
-----------	-------

Peristaltic pump tubing inlet depth

Diameter (inches)

Static Water Level 72.80'

$$\text{Max allowable DD} = 0.25 (177 - 172) = 1.25$$

Volumes Purged

Max Drawdown = $72.99 - 72.20 = 0.79 < 1.25$ ft OK

SAMPLING EQUIPMENT	
	PUMP
	TEFLON BAILER
	SS BAILER
	DISPOS. BAILER
	DDL SAMPLER
X	OTHER (SPECIFY):

FIELD TEST KITS		
Test	Concentration (mg/L)	Time
DO		
FE ²⁺		
H ₂ S		

REMARKS/COMMENTS

REMARKS/COMMENTS Tank $P_E = 1,000$ $P_E = 800$ psi Line $P = 120$ psi
Throttle $P = 60$ psi $R_L = 9.0$ sec $D_{73} = 6.0$ sec $ID = 105$ CPM 4

COMPLETED BY

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DATE _____



g:\common\FORMS\LOWFLO



OC2-PMW18A-0-22

WELL ID# NW 1881

Date 7-10-06

Screened Interval ~~56-77~~ 90-100

Casing Type: PVC

St. Steel	Other
-----------	-------

Peristaltic pump tubing inlet depth

Diameter (inches) 2

Static Water Level 26.60

Max Allowed DD

Volumes Purged

$$= 0.25(95 - 90) = 1.25'$$
$$\text{Max drawdown} = 26.74 - 26.60 = 0.14 < 1.25 \text{ pt} \quad \text{OK}$$

SAMPLING EQUIPMENT	
	PUMP
	TEFLON BAILER
	SS BAILER
	DISPOS. BAILER
	DDL SAMPLER
✓	OTHER (SPECIFY):

FIELD TEST KITS		
Test	Concentration (mg/L)	Time
DO		
FE ²⁺		
H ₂ S		

REMARKS/COMMENTS

Tank: $P_I = 2600 \text{ psi}$, $P_F = 2500 \text{ psi}$

Line pressure: 120 psi

Throttle $P = 50 \text{ psi}$

④ Refill = 9.0

Discharge 6.0

CPM4 ID = 105

COMPLETED BY

REVIEWED BY

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DATE _____



Project Name OMEGA CHEMICAL
Project Number CA000646-0001
Field Personnel VINCE / BILL

WELL ID# MW-18C

Date 7/10/06

Screened Interval 146-161

Casing Type: (PVC

	St. Steel	Other
1970-71	86.0	14.0
1971-72	86.0	14.0
1972-73	86.0	14.0
1973-74	86.0	14.0
1974-75	86.0	14.0
1975-76	86.0	14.0
1976-77	86.0	14.0
1977-78	86.0	14.0
1978-79	86.0	14.0
1979-80	86.0	14.0
1980-81	86.0	14.0
1981-82	86.0	14.0
1982-83	86.0	14.0
1983-84	86.0	14.0
1984-85	86.0	14.0
1985-86	86.0	14.0
1986-87	86.0	14.0
1987-88	86.0	14.0
1988-89	86.0	14.0
1989-90	86.0	14.0
1990-91	86.0	14.0
1991-92	86.0	14.0
1992-93	86.0	14.0
1993-94	86.0	14.0
1994-95	86.0	14.0
1995-96	86.0	14.0
1996-97	86.0	14.0
1997-98	86.0	14.0
1998-99	86.0	14.0
1999-00	86.0	14.0
2000-01	86.0	14.0
2001-02	86.0	14.0
2002-03	86.0	14.0
2003-04	86.0	14.0
2004-05	86.0	14.0
2005-06	86.0	14.0
2006-07	86.0	14.0
2007-08	86.0	14.0
2008-09	86.0	14.0
2009-10	86.0	14.0
2010-11	86.0	14.0
2011-12	86.0	14.0
2012-13	86.0	14.0
2013-14	86.0	14.0
2014-15	86.0	14.0
2015-16	86.0	14.0
2016-17	86.0	14.0
2017-18	86.0	14.0
2018-19	86.0	14.0
2019-20	86.0	14.0
2020-21	86.0	14.0
2021-22	86.0	14.0
2022-23	86.0	14.0
2023-24	86.0	14.0
2024-25	86.0	14.0
2025-26	86.0	14.0
2026-27	86.0	14.0
2027-28	86.0	14.0
2028-29	86.0	14.0
2029-30	86.0	14.0
2030-31	86.0	14.0
2031-32	86.0	14.0
2032-33	86.0	14.0
2033-34	86.0	14.0
2034-35	86.0	14.0
2035-36	86.0	14.0
2036-37	86.0	14.0
2037-38	86.0	14.0
2038-39	86.0	14.0
2039-40	86.0	14.0
2040-41	86.0	14.0
2041-42	86.0	14.0
2042-43	86.0	14.0
2043-44	86.0	14.0
2044-45	86.0	14.0
2045-46	86.0	14.0
2046-47	86.0	14.0
2047-48	86.0	14.0
2048-49	86.0	14.0
2049-50	86.0	14.0
2050-51	86.0	14.0
2051-52	86.0	14.0
2052-53	86.0	14.0
2053-54	86.0	14.0
2054-55	86.0	14.0
2055-56	86.0	14.0
2056-57	86.0	14.0
2057-58	86.0	14.0
2058-59	86.0	14.0
2059-60	86.0	14.0
2060-61	86.0	14.0
2061-62	86.0	14.0
2062-63	86.0	14.0
2063-64	86.0	14.0
2064-65	86.0	14.0
2065-66	86.0	14.0
2066-67	86.0	14.0
2067-68	86.0	14.0
2068-69	86.0	14.0
2069-70	86.0	14.0
2070-71	86.0	14.0
2071-72	86.0	14.0
2072-73	86.0	14.0
2073-74	86.0	14.0
2074-75	86.0	14.0
2075-76	86.0	14.0
2076-77	86.0	14.0
2077-78	86.0	14.0
2078-79	86.0	14.0
2079-80	86.0	14.0
2080-81	86.0	14.0
2081-82	86.0	14.0
2082-83	86.0	

Peristaltic pump tubing inlet depth 154

Diameter (inches) 2

Static Water Level 28.49

$$\text{Max Allowable Drawdown} = 0.25 (154 - 146) = 2 \text{ ft}$$

Volumes Purged

[illegible]
$$\max \text{ drawdown} = 29.08 - 28.49 = 0.59 \leq 2 \text{ ft} \quad \text{OK}$$

PURGING EQUIPMENT	
	2" BLADDER PUMP
	CENTRIFUGAL PUMP
	SUBMERSIBLE PUMP
	VACUUM TRUCK
α	DEDICATED PUMP
	OTHER (SPECIFY)

SAMPLING EQUIPMENT	
	PUMP
	TEFLON BAILER
	SS BAILER
	DISPOS. BAILER
	DDL SAMPLER
<	OTHER (SPECIFY):

FIELD TEST KITS		
Test	Concentration (mg/L)	Time
DO		
FE ²⁺		
H ₂ S		

REMARKS/COMMENTS Tank $P_r = 2300$ psi. $P_F =$

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DATE _____



Project Name Vineyard Chemical
Project Number 646-01-14
Field Personnel V. Salazar / B. Stinson

WELL ID# MW 19
Date 7-12-06

Screened Interval 56-71 Casing Type: PVC St. Steel Other

Peristaltic pump tubing inlet depth 20 Pump - Sample Pro Diameter (inches) 2

Static Water Level 109.00' max allowed = 10.25 x 14 = 3.5 ft Volumes Purged

[illegible]

PURGING EQUIPMENT	
	2" BLADDER PUMP
	CENTRIFUGAL PUMP
	SUBMERSIBLE PUMP
	VACUUM TRUCK
	DEDICATED PUMP
	OTHER (SPECIFY)

SAMPLING EQUIPMENT	
	PUMP
	TEFLON BAILER
	SS BAILER
	DISPOS. BAILER
	DDL SAMPLER
	OTHER (SPECIFY):

FIELD TEST KITS		
Test	Concentration (mg/L)	Time
DO		
FE ²⁺		
H ₂ S		

REMARKS/COMMENTS Tank $P_T = 1100$ psi $P_F =$ Pressure on line = 120 psi

$$TD = 74.51$$

Need to be a 70.1 feed to sample

COMPLETED BY ~~Recommender~~ Passive

REVIEWED BY *Jan*

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DATE _____



Project Name Doney's Charcoal
Project Number 646-01-14
Field Personnel 1/3 g/atar/B. Singshawn

Date 7/11/06

Screened Interval 75-90'

PVC

Other

Peristaltic pump tubing inlet depth 81Diameter (inches)

Static Water Level 66.79'

$$\text{Max Allowed DD} = 0.25(89 - 75) = 3.5$$

Volumes Purged

Max Drawdown: $66.91 - 66.79 = 0.12$ ft OK

SAMPLING EQUIPMENT	
	PUMP
	TEFLON BAILER
	SS BAILER
	DISPOS. BAILER
	DDL SAMPLER
	OTHER (SPECIFY):

FIELD TEST KITS		
Test	Concentration (mg/L)	Time
DO		
FE ²⁺		
H ₂ S		

REMARKS/COMMENTS

REMARKS/COMMENTS Link $P_T = 1,800$ $P_F = 1650$
Throttle $P = 55$ psi Refill = 9.0 Discharge = 6.0 ID = 105 CPM 4

COMPLETED BY

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DATE _____



Project Name Omega Chemical
Project Number 176.01.14
Field Personnel V. Salazar / B. Stinson

WELL ID# MW-20B

Date 7/11/06

Screened Interval 122-132

Casing Type:

(PVC

St. Steel

Other

Peristaltic pump tubing inlet depth 128"

Diameter (inches) 2


Static Water Level 67.19'

Max USD Allowed

Volumes Purged

$$= 0.28(128 - 122) = 1.54$$
[illegible]

PURGING EQUIPMENT	
	2" BLADDER PUMP
	CENTRIFUGAL PUMP
	SUBMERSIBLE PUMP
	VACUUM TRUCK
X	DEDICATED PUMP
	OTHER (SPECIFY) _____

SAMPLING EQUIPMENT	
	PUMP
	TEFLON BAILER
	SS BAILER
	DISPOS. BAILER
	DDL SAMPLER
	OTHER (SPECIFY):

FIELD TEST KITS		
Test	Concentration (mg/L)	Time
DO		
FE ²⁺		
H ₂ S		

REMARKS/COMMENTS

Thottle 60p2.

$$K_P = \frac{1650}{1150} \quad P_E = 1.450$$

Ref 1 - 9.5

Dächer = 4.5

$$L_{DP} = 120 \text{ psi}$$

$ID = 10^4 \text{ CPM}$

COMPLETED BY

REVIEWED BY

SIGNATURE

DATE _____



Project Name Omega Chemical
Project Number 686.01.14
Field Personnel V. Salazar / B. Slingbohm

WELL ID# MW-20C

Date 7/11/06

Screened Interval 180-190

Casing Type: ☒ PVC

St. Steel	Other
-----------	-------

Peristaltic pump tubing inlet depth 185

Diameter (inches) 2

Static Water Level 78.59' Max Allowable PD = 25 x 5 Volumes Purged

13:52

PURGING EQUIPMENT	
	2" BLADDER PUMP
	CENTRIFUGAL PUMP
	SUBMERSIBLE PUMP
	VACUUM TRUCK
	DEDICATED PUMP
	OTHER (SPECIFY)

SAMPLING EQUIPMENT	
	PUMP
	TEFLON BAILER
	SS BAILER
	DISPOS. BAILER
	DDL SAMPLER
	OTHER (SPECIFY):

FIELD TEST KITS		
Test	Concentration (mg/L)	Time
DO		
FE ²⁺		
H ₂ S		

REMARKS/COMMENTS

Throttle $P = 80 \text{ psi}$ Refill = 10.0 sec Discharge = 5.0 sec ID = 103 CPM 4

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DATE _____



Project Name OnegeChemical
Project Number 640.01.14
Field Personnel V. S. Lazer / B. Slingbaum

Date 7/12/06

St. Steel	Other
-----------	-------

Diameter (inches) 2

Volumes Purged

$$M_{gx} \quad DD = 49.73 - 49.55 = 0.18' \quad OK$$

FIELD TEST KITS		
Test	Concentration (mg/L)	Time
DO		
FE ²⁺		
H ₂ S		

Tank $P_I = 750 \text{ psi}$ $P_E = 600 \text{ PST}$
 17000 lbs 600 psi ID 101

REFM 11 sec
Dsch 45 sec

REVIEWED BY

DATE _____



Project Name Omeys Chemical
Project Number 646-01-14
Field Personnel V. Salazar / B. Slingbaum

Date 7/11/06

	St. Steel	Other
1970-71	68.0	10.0
1971-72	68.0	10.0
1972-73	68.0	10.0
1973-74	68.0	10.0
1974-75	68.0	10.0
1975-76	68.0	10.0
1976-77	68.0	10.0
1977-78	68.0	10.0
1978-79	68.0	10.0
1979-80	68.0	10.0
1980-81	68.0	10.0
1981-82	68.0	10.0
1982-83	68.0	10.0
1983-84	68.0	10.0
1984-85	68.0	10.0
1985-86	68.0	10.0
1986-87	68.0	10.0
1987-88	68.0	10.0
1988-89	68.0	10.0
1989-90	68.0	10.0
1990-91	68.0	10.0
1991-92	68.0	10.0
1992-93	68.0	10.0
1993-94	68.0	10.0
1994-95	68.0	10.0
1995-96	68.0	10.0
1996-97	68.0	10.0
1997-98	68.0	10.0
1998-99	68.0	10.0
1999-00	68.0	10.0
2000-01	68.0	10.0
2001-02	68.0	10.0
2002-03	68.0	10.0
2003-04	68.0	10.0
2004-05	68.0	10.0
2005-06	68.0	10.0
2006-07	68.0	10.0
2007-08	68.0	10.0
2008-09	68.0	10.0
2009-10	68.0	10.0
2010-11	68.0	10.0
2011-12	68.0	10.0
2012-13	68.0	10.0
2013-14	68.0	10.0
2014-15	68.0	10.0
2015-16	68.0	10.0
2016-17	68.0	10.0
2017-18	68.0	10.0
2018-19	68.0	10.0
2019-20	68.0	10.0
2020-21	68.0	10.0
2021-22	68.0	10.0
2022-23	68.0	10.0
2023-24	68.0	10.0
2024-25	68.0	10.0
2025-26	68.0	10.0
2026-27	68.0	10.0
2027-28	68.0	10.0
2028-29	68.0	10.0
2029-30	68.0	10.0
2030-31	68.0	10.0
2031-32	68.0	10.0
2032-33	68.0	10.0
2033-34	68.0	10.0
2034-35	68.0	10.0
2035-36	68.0	10.0
2036-37	68.0	10.0
2037-38	68.0	10.0
2038-39	68.0	10.0
2039-40	68.0	10.0
2040-41	68.0	10.0
2041-42	68.0	10.0
2042-43	68.0	10.0
2043-44	68.0	10.0
2044-45	68.0	10.0
2045-46	68.0	10.0
2046-47	68.0	10.0
2047-48	68.0	10.0
2048-49	68.0	10.0
2049-50	68.0	10.0
2050-51	68.0	10.0
2051-52	68.0	10.0
2052-53	68.0	10.0
2053-54	68.0	10.0
2054-55	68.0	10.0
2055-56	68.0	10.0
2056-57	68.0	10.0
2057-58	68.0	10.0
2058-59	68.0	10.0
2059-60	68.0	10.0
2060-61	68.0	10.0
2061-62	68.0	10.0
2062-63	68.0	10.0
2063-64	68.0	10.0
2064-65	68.0	10.0
2065-66	68.0	10.0
2066-67	68.0	10.0
2067-68	68.0	10.0
2068-69	68.0	10.0
2069-70	68.0	10.0
2070-71	68.0	10.0
2071-72	68.0	10.0
2072-73	68.0	10.0
2073-74	68.0	10.0
2074-75	68.0	10.0
2075-76	68.0	10.0
2076-77	68.0	10.0
2077-78	68.0	10.0
2078-79	68.0	10.0
2079-80	68.0	10.0
2080-81	68.0	10.0
2081-82	68.0	10.0
2082-83	68.0	

Diameter (inches) 2

Volumes Purged

[illegible]

PURGING EQUIPMENT	
	2" BLADDER PUMP
	CENTRIFUGAL PUMP
	SUBMERSIBLE PUMP
	VACUUM TRUCK
X	DEDICATED PUMP
	OTHER (SPECIFY)

SAMPLING EQUIPMENT	
	PUMP
	TEFLON BAILER
	SS BAILER
	DISPOS. BAILER
	DDL SAMPLER
✓	OTHER (SPECIFY):

FIELD TEST KITS		
Test	Concentration (mg/L)	Time
DO		
FE ²⁺		
H ₂ S		

REMARKS/COMMENTS Tank $P_s = 1,200$; $P_e = 1,100$ Line $P = 120$ psi
Throttle $P = 55$ psi Refill = 10.0 sec Discharge = 5.0 sec ID = 103 CPM4

REVIEWED BY

DATE _____



Project Name Omega Chemical
Project Number CA00646.0001.00014
Field Personnel V. Salazar / B. S. Ingram

WELL ID# MW-23B

Date 7/7/06

Screened Interval 87-97'

Casing Type: (PVC

	St. Steel	Other
1970-71	86.0	14.0
1971-72	86.0	14.0
1972-73	86.0	14.0
1973-74	86.0	14.0
1974-75	86.0	14.0
1975-76	86.0	14.0
1976-77	86.0	14.0
1977-78	86.0	14.0
1978-79	86.0	14.0
1979-80	86.0	14.0
1980-81	86.0	14.0
1981-82	86.0	14.0
1982-83	86.0	14.0
1983-84	86.0	14.0
1984-85	86.0	14.0
1985-86	86.0	14.0
1986-87	86.0	14.0
1987-88	86.0	14.0
1988-89	86.0	14.0
1989-90	86.0	14.0
1990-91	86.0	14.0
1991-92	86.0	14.0
1992-93	86.0	14.0
1993-94	86.0	14.0
1994-95	86.0	14.0
1995-96	86.0	14.0
1996-97	86.0	14.0
1997-98	86.0	14.0
1998-99	86.0	14.0
1999-00	86.0	14.0
2000-01	86.0	14.0
2001-02	86.0	14.0
2002-03	86.0	14.0
2003-04	86.0	14.0
2004-05	86.0	14.0
2005-06	86.0	14.0
2006-07	86.0	14.0
2007-08	86.0	14.0
2008-09	86.0	14.0
2009-10	86.0	14.0
2010-11	86.0	14.0
2011-12	86.0	14.0
2012-13	86.0	14.0
2013-14	86.0	14.0
2014-15	86.0	14.0
2015-16	86.0	14.0
2016-17	86.0	14.0
2017-18	86.0	14.0
2018-19	86.0	14.0
2019-20	86.0	14.0
2020-21	86.0	14.0
2021-22	86.0	14.0
2022-23	86.0	14.0
2023-24	86.0	14.0
2024-25	86.0	14.0
2025-26	86.0	14.0
2026-27	86.0	14.0
2027-28	86.0	14.0
2028-29	86.0	14.0
2029-30	86.0	14.0
2030-31	86.0	14.0
2031-32	86.0	14.0
2032-33	86.0	14.0
2033-34	86.0	14.0
2034-35	86.0	14.0
2035-36	86.0	14.0
2036-37	86.0	14.0
2037-38	86.0	14.0
2038-39	86.0	14.0
2039-40	86.0	14.0
2040-41	86.0	14.0
2041-42	86.0	14.0
2042-43	86.0	14.0
2043-44	86.0	14.0
2044-45	86.0	14.0
2045-46	86.0	14.0
2046-47	86.0	14.0
2047-48	86.0	14.0
2048-49	86.0	14.0
2049-50	86.0	14.0
2050-51	86.0	14.0
2051-52	86.0	14.0
2052-53	86.0	14.0
2053-54	86.0	14.0
2054-55	86.0	14.0
2055-56	86.0	14.0
2056-57	86.0	14.0
2057-58	86.0	14.0
2058-59	86.0	14.0
2059-60	86.0	14.0
2060-61	86.0	14.0
2061-62	86.0	14.0
2062-63	86.0	14.0
2063-64	86.0	14.0
2064-65	86.0	14.0
2065-66	86.0	14.0
2066-67	86.0	14.0
2067-68	86.0	14.0
2068-69	86.0	14.0
2069-70	86.0	14.0
2070-71	86.0	14.0
2071-72	86.0	14.0
2072-73	86.0	14.0
2073-74	86.0	14.0
2074-75	86.0	14.0
2075-76	86.0	14.0
2076-77	86.0	14.0
2077-78	86.0	14.0
2078-79	86.0	14.0
2079-80	86.0	14.0
2080-81	86.0	14.0
2081-82	86.0	14.0
2082-83	86.0	

Peristaltic pump tubing inlet depth 92'

Diameter (inches) 3

Static Water Level 28.19'

1.25' Allowable Drawdown

Volumes Purged

[illegible]

PURGING EQUIPMENT	
	2" BLADDER PUMP
	CENTRIFUGAL PUMP
	SUBMERSIBLE PUMP
	VACUUM TRUCK
X	DEDICATED PUMP
	OTHER (SPECIFY)

SAMPLING EQUIPMENT	
	PUMP
	TEFLON BAILER
	SS BAILER
	DISPOS. BAILER
	DDL SAMPLER
X	OTHER (SPECIFY):

FIELD TEST KITS		
Test	Concentration (mg/L)	Time
DO		
FE ²⁺		
H ₂ S		

REMARKS/COMMENTS N₂ Tank: P_T = 1050 psi; P_F = 950 psi Line P = 120 psi

MPID settings: Throttle P=50 Refill=10.5 Discharge=4.5 ID=102
REFILL=10.5, Arch 4.5 ID=102 Throttle=50 CPM=4

COMPLETED BY _____

REVIEWED BY

SIGNATURE

DATE _____



Project Name OMEGA CHEMICAL
Project Number CN00646.0001.00014
Field Personnel VINCENT/B.C.

WELL ID# MW-23C
Date 7-7-06

Screened Interval 145-160', Casing Type: PVC St. Steel Other _____

Peristaltic pump tubing inlet depth 159 Diameter (inches) _____

Static Water Level 30.94 max dd: $(159-145) \times 0.25$ Volumes Purged _____

[illegible]

PURGING EQUIPMENT	
	2" BLADDER PUMP
	CENTRIFUGAL PUMP
	SUBMERSIBLE PUMP
	VACUUM TRUCK
<input checked="checked" type="checkbox"/>	DEDICATED PUMP
	OTHER (SPECIFY)

SAMPLING EQUIPMENT	
	PUMP
	TEFLON BAILER
	SS BAILER
	DISPOS. BAILER
	DDL SAMPLER
	OTHER (SPECIFY):

FIELD TEST KITS		
Test	Concentration (mg/L)	Time
DO		
FE ²⁺		
H ₂ S		

REMARKS/COMMENTS N_2 TANK z $P_2 \approx 900$ psi $P_F \approx$ LINE $P \approx 120$ psi
 MP10 SEITUNG: TINGILL $P \approx 50$ psi REFILL ≈ 11.5 DISCHARGE ≈ 23.5 ID ≈ 100
 GPM ≈ 4
 COMPLETED BY Leaf/Hobbes gig came by. I could smell ethanol. REVIEWED BY [Signature]

COMPLETED BY Lee J. [unclear]

REVIEWED BY Per H

SIGNATURE _____

DATE _____



Project Name Omega Chemical
Project Number 0A000646.0001.00014
Field Personnel V. Schaefer / B. Slinghorne

WELL ID# MW-23 D

Date 7/7/06

Screened Interval 175-190

Casing Type:

PVC

St. Steel

Other

Peristaltic pump tubing inlet depth 182

Diameter (inches)

Static Water Level 31.71

$$\text{max drawdown} = 7 \times 0.25 = 1.75'$$

Volumes Purged

Draw low = $32.20 - 31.70 = 0.5 < 1.5$ OK

FIELD TEST KITS		
Test	Concentration (mg/L)	Time
DO		
FE ²⁺		
H ₂ S		

REMARKS/COMMENTS

REMARKS/COMMENTS Tank Pressure: $P_i = N A P_o = 800 \text{ psi}$

Line Pressure = 120 psi

MP10 settings: Throttle P = 50 psi, Refill = 10 sec Discharge 5 sec, ID = 103, CPM 4

COMPLETED BY

REVIEWED BY

SIGNATURE

DATE _____



ARCADIS

SUBJECT:

Sample Log
Omega Chem

JOB NO:

BY:

DATE:

CHKD:

DATE:

7/6/06

PAGE

SHEET

1

Sample Log

7/6/06

~~OC2-PMW12-0-1~~
OC2-PMW12-0-1

3xVOA's
2x1H SVOC's
2x1H NDMA
2x1H 14 Diome
3xVOA 123TCP
1xVOA TOC
1x250ml C16
1x125ml Cyanide
1x500ml TICN
1x500ml metals.

unfiltered
unpreserved

OC2-PMW13B-0-2

VOCs	3x40ml	A06422
123TCP	3x40ml	A06422
TOC	1x40ml	-
SVOC	2x1H Amber	024051, 024050
NDMA	2x1H Amber	024036, 024031
14 Diome	1x1H Amber	024115
Perchlorate/C16/Amino/TDS		001384
metals	500 ml poly	002515
Cyanide	125ml poly	001337
TICN	500 ml poly	45318

unfiltered
unpreserved

OC2-PMW13B-1-3
(dup)

VOCs 3x40ml VOA
123TCP -
TOC 1x40ml
SVOC 2x1H Amber
NDMA -
1,4 Diome 1x1H Amber
C16/C14/Amino/TDS 1x250ml poly
cyanide 1x125ml poly
TKA 1x500ml poly
metals 1x500ml poly -

unfiltered
unpreserved

OC2-PMW13B-5-4



SUBJECT: Omega Chemical,
Sample 65

JOB NO: _____

BY: _____ DATE: _____

CHKD: _____ DATE: 7/6/06

PAGE

SHEET
1

7/6/06 002-00-W-4-5 1x 40ml WNA Trip.
TB-01-06-06 - - -

09:15 002-00-W-4-7 3x 40ml WNA Field Blank.

09:30 002-00-W-4-8 1x 40ml WNA
~~TB-01-06-06~~ Field Blank.
Container ID TB-01-06-06.
~~TB-01-06-06 1x 40ml~~

SAMPLE IDENTIFICATION LOG

Date	Time	Operable Unit	Well Location	Sampled Medium (Water or Soil)	Sample Type ¹ (0 thru 6)	Sequential Sample No.	Remarks
Sample Type: 0 - Primary Sample; 1 - Field Duplicate; 2 - Field Blank; 3 - Equipment Blank 4 - Trip Blank; 5 - MS/MSD; 6 - Regulatory Split.							
7/7/06		OC2	CC	W	15	15	Duplicate
			PMW 13C				
							VOCs 3x40 mL + HCL
							1,2,3 TCP 3x40 mL + HCL
							TOC 1x40 mL + HCL
							SVOCs 2x1H ₂ E 024120/024119
							NDMA 2x1H ₂ E 024116/024117
							1,4 Dioxane 1x1H ₂ E 024121
							Cyanide / NaOH 001337
							CR ⁶ , ANIONS, TDS perch 001377
							Dissolved METAL 002568
							TKN 351.3/H ₂ SO ₄ - 002514
7-10-06		OC2	PMW 230	0-16	0	16	
							VOC 3x40 mL + HCL
							1,2,3 TCP 3x40 mL + HCL
							TOC 1x40 mL + HCL
							SVOC 2x1H ₂ E
							NDMA 2x1H ₂ E
							1,4 Dioxane 1x1H ₂ E
							Cyanide / NaOH
							CR ⁶ , ANIONS, TDS perch
							Dissolved METAL
							TKN 351.3/H ₂ SO ₄
7-10-06		OC2	PMW 15		0	17	
							VOCs 3x40 mL + HCL
							1,2,3 TCP 3x40 mL + HCL
							TOC 1x40 mL + HCL
							SVOCs 2x1H ₂ E
							NDMA 2x1H ₂ E
							1,4 Dioxane 1x1H ₂ E
							Cyanide / NaOH
							CR ⁶ , ANIONS, TDS, perch 001379
							Dissolved METAL 002518
							TKN 351.3/H ₂ SO ₄ 001554
7-10-06		OC2	00	W	4	18	TRIP BLANK
7-10-06		OC2	00	W	2	19	Field Blank

SAMPLE IDENTIFICATION LOG

Date	Time	Operable Unit	Well Location	Sampled Medium (Water or Soil)	Sample Type ¹ (0 thru 6)	Sequential Sample No.	Remarks
Sample Type: 0 - Primary Sample; 1 - Field Duplicate; 2 - Field Blank; 3 - Equipment Blank 4 - Trip Blank; 5 - MS/MSD; 6 - Regulatory Split.							
7/7/06		OC 2	00	W	2	9	Field 3xVOC + HCl
		OC 2	00	W	4	10	Trip 2xVOC + HCl
		OC 2	00	W	4	11	Trip #2 1xVOC + HCl
	09:15	OC 2	PMW 14	—	0	12	VOCs 3x40ml + HCl
							123TCP 3x40ml + HCl
							TOC 1x40ml + HCl
							SVOCs 2x1H + 2 024054/No number
							NDMA 2x1H + 2 024017/024030
							1,4 Dioxane 1x1H + 2 No number
							Cyanide 1x15ML NACH 0001377
							CLYD, ANIONS, TDS, REAC/CL/ACTR 001385
							Dissolved TALS METAL + BODEN'S 001566
							TKN 351.3 H2SO4 45318 500ml
		OC 2	PMW 23B	—	0	13	VOC 3x40ml + HCl
							123TCP
							TOC
							SVOC 2x1H + 2 024061
							NDMA 024053
							1,4 Dioxane 1x1H + 2 024023
							Diss. Metals 1x500ml + 2 024114
							TKN 1x500ml 002513
							Anions + Cl + 2 1x250ml 45318
							Cyanide 1x125ml 001367
		OC 2	PMW 23C	—	0	14	VOC 3x40ml + HCl
							123TCP
							TOC
							SVOC 2x1H + 2 024310
							NDMA 2x500ML + 2 024312
							TKN 1x500ML 024027
							ANIONS + CL + 2 1x250ML 024026
							Cyanide 1x125ML 001337
							1,4 Dioxane 1x1H 024313
							DIS METALS 001512

SAMPLE IDENTIFICATION LOG

Date	Time	Operable Unit	Well Location	Sampled Medium (Water or Soil)	Sample Type ¹ (0 thru 6)	Sequential Sample No.	Remarks
Sample Type: 0 - Primary Sample; 1 - Field Duplicate; 2 - Field Blank; 3 - Equipment Blank 4 - Trip Blank; 5 - MS/MSD; 6 - Regulatory Split.							
7/12/06							
7/12/06		DC2	PMW17A	W	0	37	VOC 3X40ML HCL 1,2,3TCP 3X40ML HCL TOC 1X40ML HCL SVOC 2X1H NDMA 2X1H 1,4-DIOXANE 1X1H CYANIDE NOAH CH ₆ ANION TDS CHL DISSOLVED TAL METAL TKN H ₂ SO ₄ 1X500
7-12-06		DC2	PMW17B	W	0	38	VOC 3X40ML HCL 1,2,3TCP 3X40ML HCL TOC 1X40ML HCL SVOC 2X1H NDMA 2X1H 1,4 DIOXANE 1X1H CYANIDE NOAH CH ₆ ANION TDS DISSOLVED TAL METAL TKN H ₂ SO ₄ 1X500
7-12-06		DC2	PMW17C	W	0	39	VOC 3X40ML HCL 1,2,3TCP 3X40ML HCL TOC 1X40ML HCL SVOC 2X1H NDMA 2X1H 1,4-DIOXANE 1X1H CYANIDE NOAH CH ₆ ANION TDS DISSOLVED TAL METAL TKN H ₂ SO ₄ 1X500
7/12/06		DC2	PMW17D	W	0	40	VOC 3X40ML HCL 1,2,3TCP 3X40ML HCL TOC 1X40ML HCL SVOC 2X1H NDMA 2X1H 1,4-DIOXANE 1X1H CYANIDE NOAH CH ₆ ANION TDS DISSOLVED TAL METAL TKN H ₂ SO ₄ 1X500

024289
024260008202
008172
008172
008172
023849003424
003424
003424
003424003424
003424
003424
003424001383
004638
002569
024282
024260
024271
004265024275
024272
024260
024260
024260CH₆ ANIONS, TDS. — 001386
PERCHLORATE
DISSOLVED TAL METAL — 001415
TKN 351.3 — 001560

SAMPLE IDENTIFICATION LOG

Date	Time	Operable Unit	Well Location	Sampled Medium (Water or Soil)	Sample Type ¹ (0 thru 6)	Sequential Sample No.	Remarks
Sample Type: 0 - Primary Sample; 1 - Field Duplicate; 2 - Field Blank; 3 - Equipment Blank 4 - Trip Blank; 5 - MS/MSD; 6 - Regulatory Split.							
7-11-06		OC2	P001A	W	2	28	VOC 3 x 40mL HCL
7-11-06		OC2	P001A	W	4	29	VOC 1 x 40mL HCL
7-11-06		OC2	PMW20A	W	0	30	
7-11-06		OC2	PMW20B	W	0	31	VOC 3 x 40mL HCL 1,2,3TCP 3 x 4mL HCL TOC 1 x 40mL HCL SVOC 2 x 1H NDMA 2 x 1H 1,4 DIOXANE 1 x 1H CYANIDE NaOH CR6 ANIONSDS TKN H ₂ SO ₄ dissolved METAL
7-11-06		OC2	PMW20C	W	0	32	VOC 3 x 40mL + HCL 1,2,3TCP 3 x 40mL + HCL TOC 1 x 40mL + HCL SVOC 2 x 1H NDMA 2 x 1H 1,4 DIOXANE 1 x 1H CYANIDE NaOH 125 CR6 ANIONSDS TKN H ₂ SO ₄ dissolved METAL
7-11-06		OC2	PMW22	W	0	33	
7-11-06		OC2	PMW22	W	0	33	
7-12-06		OC2	PMW19	W	0	34	VOC 3 x 40mL + HCL 1,2,3TCP 3 x 40mL + HCL TOC 1 x 40mL HCL SVOC 2 x 1H NDMA 2 x 1H 1,4 DIOXANE 1 x 1H CYANIDE NaOH 125 CR6 ANIONSDS TKN H ₂ SO ₄ dissolved METAL
7-12-06		OC2	00	W	1	35	FIELD
7-12-06		OC2	00	W	4	36	TRIP

FIELD
TRIP023846
023848
023853
023858001381
001589
002570024303
024302
024305
024306
024307
000137
001376
002143
002525008191
008205
008193
008197
003426
001559
004746

SAMPLE IDENTIFICATION LOG

Date	Time	Operable Unit	Well Location	Sampled Medium (Water or Soil)	Sample Type ¹ (0 thru 6)	Sequential Sample No.	Remarks
Sample Type: 0 - Primary Sample; 1 - Field Duplicate; 2 - Field Blank; 3 - Equipment Blank 4 - Trip Blank; 5 - MS/MSD; 6 - Regulatory Split.							
7-10-06		OC2	Amw18C	W	0	24	VOC 3x40ML + HCL 1,2,3TCP 3x40ML + HCL TOC 1x40ML + HCL SVOC 2x1H NDMA 2x1H 1,4 DIOXANE 1x1H CYANIDE / NaOH CA+6, ANIONS, TDS, PERCHLORATE DISSOLVED TAL METALS TKN 351.3 / H ₂ SO ₄
							024184 024183 024182 024185 0001337 001387 000522 002523
7-11-06		OC2	Amw16A	W	0	25	VOC 3x40ML + HCL 1,2,3TCP 3x40ML + HCL TOC 1x40ML + HCL SVOC 2x1H NDMA 2x1H 1,4 DIOXANE 1x1H CYANIDE / NaOH CA+6, ANIONS, TDS, PERCHLORATE DISSOLVED TAL METALS TKN 351.7 / H ₂ SO ₄
							024186 024183 024180 024187 0001337 001389 000529 002146
7-11-06		OC2	pmw16B	W	0	26	VOC 3x40ML + HCL 1,2,3TCP 3x40ML + HCL TOC 1x40ML + HCL SVOC 2x1H NDMA 2x1H 1,4 DIOXANE 1x1H CYANIDE / NaOH CA+6, ANIONS, TDS, PERCHLORATE DISSOLVED TAL METALS TKN 351.3 / H ₂ SO ₄
							024174 024057 024178 024052 0001337 001373 002511 002149
7-11-06		OC2	pmw16C	W	0	27	VOC 3x40ML + HCL 1,2,3 TCP 3x40ML + HCL TOC 1x40ML + HCL SVOC 2x1H NDMA 2x1H 1,4 DIOXANE 1x1H CYANIDE / NaOH CA+6, ANIONS, TDS, CHLORIDE DISSOLVED TAL METALS TKN / H ₂ SO ₄
							024175 024181 024173 024172 024179 001370 002025 002152

SAMPLE IDENTIFICATION LOG

Date	Time	Operable Unit	Well Location	Sampled Medium (Water or Soil)	Sample Type ¹ (0 thru 6)	Sequential Sample No.	Remarks
Sample Type: 0 - Primary Sample; 1 - Field Duplicate; 2 - Field Blank; 3 - Equipment Blank 4 - Trip Blank; 5 - MS/MSD; 6 - Regulatory Split.							
7-10-06		OC2	PMW15	W	1	20	DUP
							VOC, 3x40mL + HCL
							1,2,3 TCP 3x40mL + HCL
							TOC 1x40mL + HCL
							SVOC 2x1H ₂
							NDMA 2x1H ₂
							1,4-DIOXANE 1x1H ₂
							CYANIDE/NaOH
							CH ₂ O ANION, TDS, PERCHLORATE
							Dissolved TAL METAL
							TKN 351.3/H ₂ SO ₄
7/10/06		OC2	PMW15	W	5	21	MSD
							VOC, 3x40mL + HCL
							1,2,3 TCP 3x40mL + HCL
							TOC 1x40mL + HCL
							SVOC 2x1H ₂
							NDMA 2x1H ₂
							1,4-DIOXANE 1x1H ₂
							CYANIDE/NaOH
							CH ₂ O ANION, TDS, PERCHLORATE
							Dissolved TAL METAL
							TKN 351.3/H ₂ SO ₄
7/10/06		OC2	PMW18	W	0	22	VOC, 3x40mL + HCL
							1,2,3 TCP 3x40mL + HCL
							TOC 1x40mL + HCL
							SVOC 2x1H ₂
							NDMA 2x1H ₂
							1,4-DIOXANE 1x1H ₂
							CYANIDE/NaOH
							CH ₂ O ANION, TDS, PERCHLORATE
							Dissolved TAL METAL
							TKN 351.3/H ₂ SO ₄
7-10-06		OC2	PMW18	W	0	22	VOC, 3x40mL + HCL
							1,2,3 TCP 3x40mL + HCL
							TOC 1x40mL + HCL
							SVOC 2x1H ₂
							NDMA 2x1H ₂
							1,4-DIOXANE 1x1H ₂
							CYANIDE/NaOH
							CH ₂ O ANION, TDS, PERCHLORATE
							Dissolved TAL METAL
							TKN



QED Model MP20DT Calibration & Checkout Sheet

TECHNICIAN: RE

DATE: 7/3/08

INSTRUMENT INFORMATION

RENTAL ID#: MP20DT. 03

SERIAL NUMBER: 0002456

CALIBRATION INFORMATION

SENSOR RANGES

pH 0-14 Units
DO 0-500%
ORP -999 to +999
Cond. 0-100mS/cm
Turb. 0-1000NTU

CONDUCTIVITY...

☒ Lot# 5200

RESPONSE...

pH ZERO...

☐ Lot# N/A

RESPONSE...

pH SLOPE...

☒ Lot# 6025/6095/5212

RESPONSE...

DISSOLVED OXYGEN...

☒ Lot# _____

RESPONSE...

REDOX...

☒ Lot# 515/07

RESPONSE...

TURBIDITY ZERO

☒ Lot# N/A

RESPONSE...

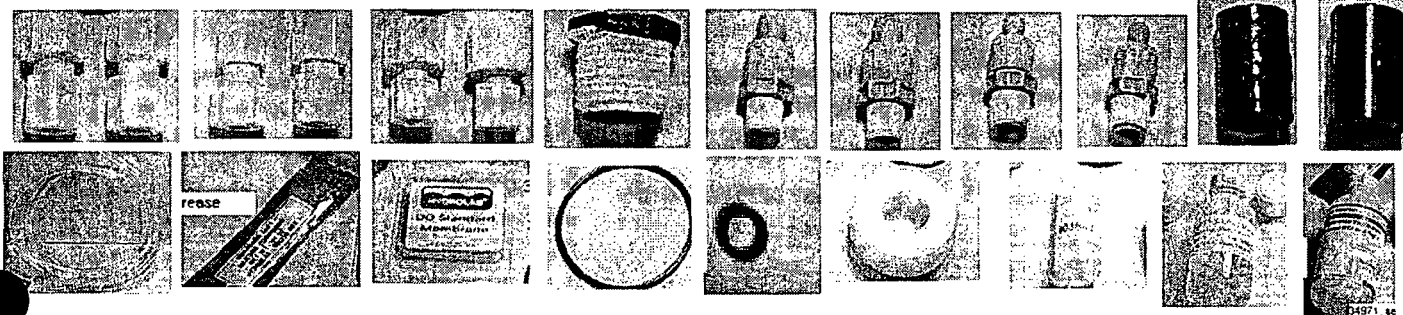
TURBIDITY SPAN

☒ Lot# 7/1/08

RESPONSE...

Factory certified
Service center

ACCESSORIES INCLUDED WITH THIS RENTAL KIT



THANK YOU FOR RENTING FROM EQUIPCO

This instrument has been thoroughly tested by a factory certified service technician before delivery to you.
If you have any questions or difficulties please call us immediately and request technical support.

1-800-550-5875



QED Model MP20DT Calibration & Checkout Sheet

TECHNICIAN: [Signature]

DATE: 7/7/06

INSTRUMENT INFORMATION

RENTAL ID#: MP20DT. 02

SERIAL NUMBER: 0102348

CALIBRATION INFORMATION

SENSOR RANGES...

pH 0-14 Units
DO 0-500%
ORP -999 to +999
Cond. 0-100mS/cm
Turb. 0-1000NTU

CONDUCTIVITY...

☒ Lot# 520

pH ZERO...

☐ Lot# _____

pH SLOPE...

☒ Lot# 6025
6095
5191

DISSOLVED OXYGEN...

☒ Lot# _____

REDOX...

☒ Lot# 515/99

TURBIDITY ZERO

☒ Lot# N/A

TURBIDITY SPAN

☒ Lot# 7/7/06

RESPONSE...

1.000

RESPONSE...

RESPONSE...

7.418

RESPONSE...

1.00

RESPONSE...

2.310

RESPONSE...

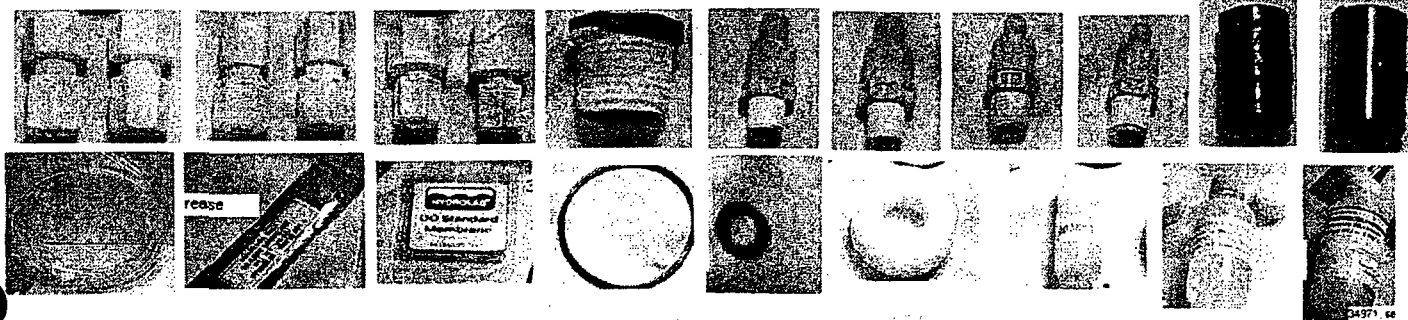
N/A

RESPONSE...

2.0

Factory certified
Service center

ACCESSORIES INCLUDED WITH THIS RENTAL KIT



THANK YOU FOR RENTING FROM EQUIPCO

This instrument has been thoroughly tested by a factory certified service technician before delivery to you.
If you have any questions or difficulties please call us immediately and request technical support.

1-800-550-5875



QED Model MP20DT Calibration & Checkout Sheet

TECHNICIAN: RE

DATE: 7/3/06

INSTRUMENT INFORMATION

RENTAL ID#: MP20DT. 03

SERIAL NUMBER: 0002456

CALIBRATION INFORMATION

SENSOR RANGES...

pH 0-14 Units
DO 0-500%
ORP -999 to +999
Cond. 0-100mS/cm
Turb. 0-1000NTU

CONDUCTIVITY...

☒ Lot# 5200

pH ZERO...

☐ Lot# N/A

pH SLOPE...

☒ Lot# 6025/6095/5212

DISSOLVED OXYGEN...

☒ Lot# _____

REDOX...

☒ Lot# 515/02

TURBIDITY ZERO

☒ Lot# N/A

TURBIDITY SPAN

☒ Lot# 7/1/06

RESPONSE...

100%

RESPONSE...

RESPONSE...

7/4/7

RESPONSE...

100%

RESPONSE...

231

RESPONSE...

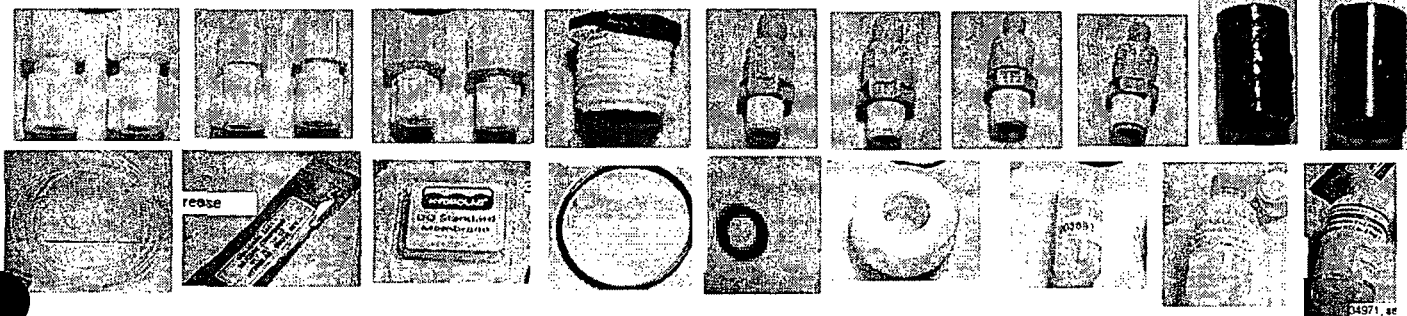
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RESPONSE...

20

Factory certified
Service center

ACCESSORIES INCLUDED WITH THIS RENTAL KIT



THANK YOU FOR RENTING FROM EQUIPCO

This instrument has been thoroughly tested by a factory certified service technician before delivery to you.
If you have any questions or difficulties please call us immediately and request technical support.

1-800-550-5875



QED Model MP20DT Calibration & Checkout Sheet

TECHNICIAN: [Signature]

DATE: 7/2/06

INSTRUMENT INFORMATION

RENTAL ID#: MP20DT. 02

SERIAL NUMBER: 0002348

CALIBRATION INFORMATION

SENSOR RANGES

pH 0-14 Units
DO 0-500%
ORP -999 to +999
Cond. 0-100mS/cm
Turb. 0-1000NTU

CONDUCTIVITY...

☒ Lot# 5200

pH ZERO...

☐ Lot# _____

pH SLOPE... 6825

☒ Lot# 5191

DISSOLVED OXYGEN...

☒ Lot# _____

REDOX...

☒ Lot# 5151A

TURBIDITY ZERO

☒ Lot# N/A

TURBIDITY SPAN

☒ Lot# 7/2/06

RESPONSE...

1.000

RESPONSE...

RESPONSE...

7.418

RESPONSE...

1.00

RESPONSE...

2.31

RESPONSE...

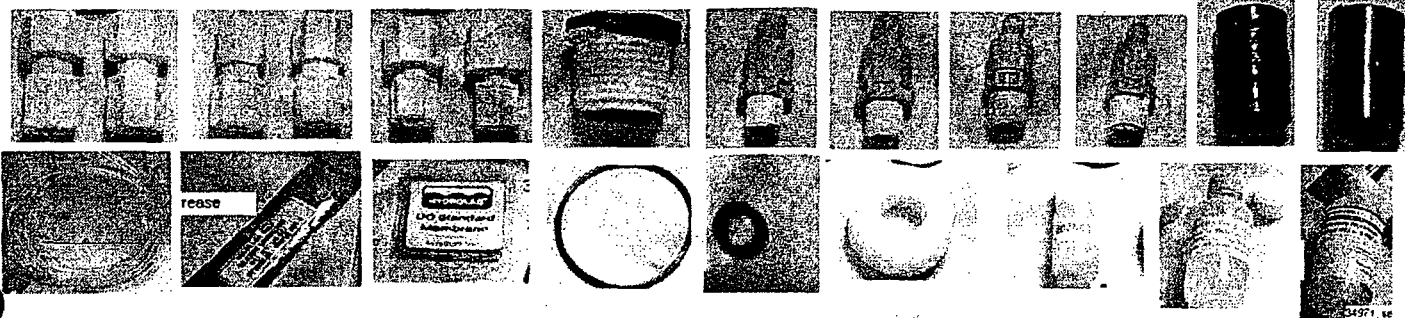
N/A

RESPONSE...

2.0

Factory certified
Service center

ACCESSORIES INCLUDED WITH THIS RENTAL KIT



THANK YOU FOR RENTING FROM EQUIPCO

This instrument has been thoroughly tested by a factory certified service technician before delivery to you.
If you have any questions or difficulties please call us immediately and request technical support.

1-800-550-5875

EQUIPCO

RENTALS

2100 Meridian Park Boulevard, Concord CA 94520



QED Model MP20DT Calibration & Checkout Sheet

TECHNICIAN: RE

DATE: 7/3/08

INSTRUMENT INFORMATION

RENTAL ID#: MP20DT. 03

SERIAL NUMBER: 0002456

CALIBRATION INFORMATION

SENSOR RANGES...

pH 0-14 Units
DO 0-500%
ORP -999 to +999
Cond. 0-100mS/cm
Turb. 0-1000NTU

CONDUCTIVITY...



Lot# 5200

RESPONSE...

1000

pH ZERO...



Lot# N/A

RESPONSE...

pH SLOPE...



Lot# 6025/6095/5212

RESPONSE...

7/4/7

DISSOLVED OXYGEN...



Lot# _____

RESPONSE...

100 %

REDOX...



Lot# 515/07

RESPONSE...

231

TURBIDITY ZERO



Lot# N/A

RESPONSE...

0

TURBIDITY SPAN



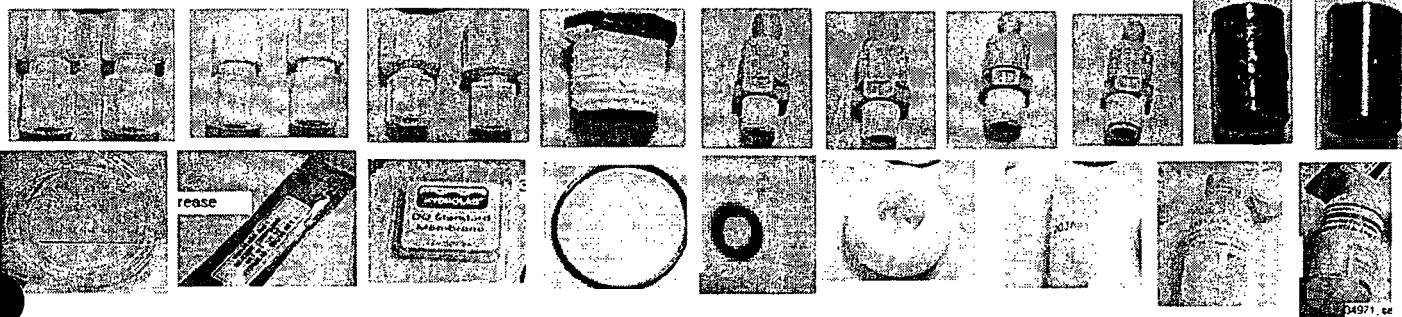
Lot# 7/1/08

RESPONSE...

20

Factory certified
Service center

ACCESSORIES INCLUDED WITH THIS RENTAL KIT



THANK YOU FOR RENTING FROM EQUIPCO

This instrument has been thoroughly tested by a factory certified service technician before delivery to you.
If you have any questions or difficulties please call us immediately and request technical support.

1-800-550-5875



QED Model MP20DT Calibration & Checkout Sheet

TECHNICIAN: [Signature]

DATE: 7/7/06

INSTRUMENT INFORMATION

RENTAL ID#: MP20DT. 02

SERIAL NUMBER: QNO2348

CALIBRATION INFORMATION

SENSOR RANGES...

pH 0-14 Units
DO 0-500%
ORP -999 to +999
Cond. 0-100mS/cm
Turb. 0-1000NTU

CONDUCTIVITY...

☒ Lot# 520

pH ZERO...

☐ Lot# _____

pH SLOPE... 6025

☒ Lot# 5191

DISSOLVED OXYGEN...

☒ Lot# _____

REDOX...

☒ Lot# 515/07

TURBIDITY ZERO

☒ Lot# N/A

TURBIDITY SPAN

☒ Lot# 7/7/06

RESPONSE...

1.000

RESPONSE...

RESPONSE...

7.418

RESPONSE...

1.00

RESPONSE...

2.310

RESPONSE...

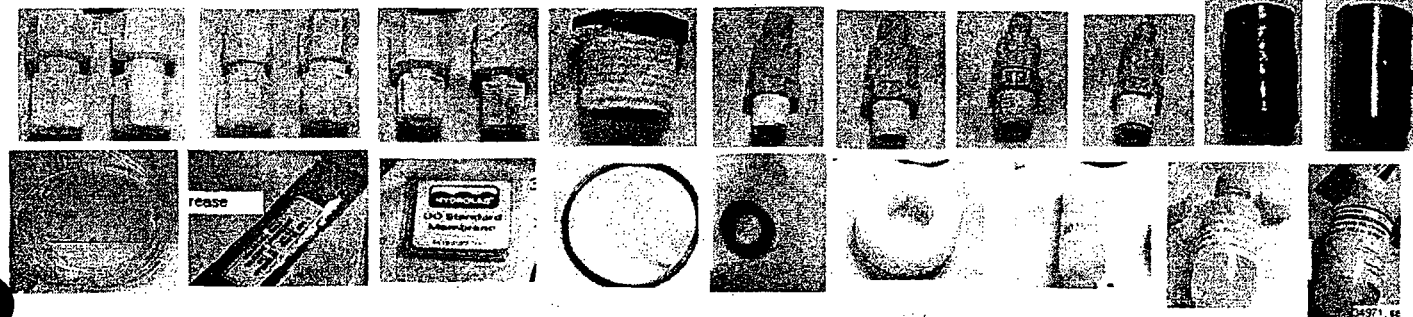
N/A

RESPONSE...

2.0

Factory certified
Service center

ACCESSORIES INCLUDED WITH THIS RENTAL KIT



THANK YOU FOR RENTING FROM EQUIPCO

This instrument has been thoroughly tested by a factory certified service technician before delivery to you.
If you have any questions or difficulties please call us immediately and request technical support.

1-800-550-5875



QED Model MP20DT Calibration & Checkout Sheet

TECHNICIAN: AB

DATE: 7/3/06

INSTRUMENT INFORMATION

RENTAL ID#: MP20DT. 03

SERIAL NUMBER: QD02456

CALIBRATION INFORMATION

SENSOR RANGES...

pH 0-14 Units
DO 0-500%
ORP -999 to +999
Cond. 0-100mS/cm
Turb. 0-1000NTU

CONDUCTIVITY...

☒ Lot# 5200

pH ZERO...

☐ Lot# N/A

pH SLOPE...

☒ Lot# 6025/6095/5212

DISSOLVED OXYGEN...

☐ Lot# _____

REDOX...

☐ Lot# 515/07

TURBIDITY ZERO

☒ Lot# N/A

TURBIDITY SPAN

☐ Lot# 7/1/06

RESPONSE...

100%

RESPONSE...

RESPONSE...

2/4/7

RESPONSE...

100%

RESPONSE...

231

RESPONSE...

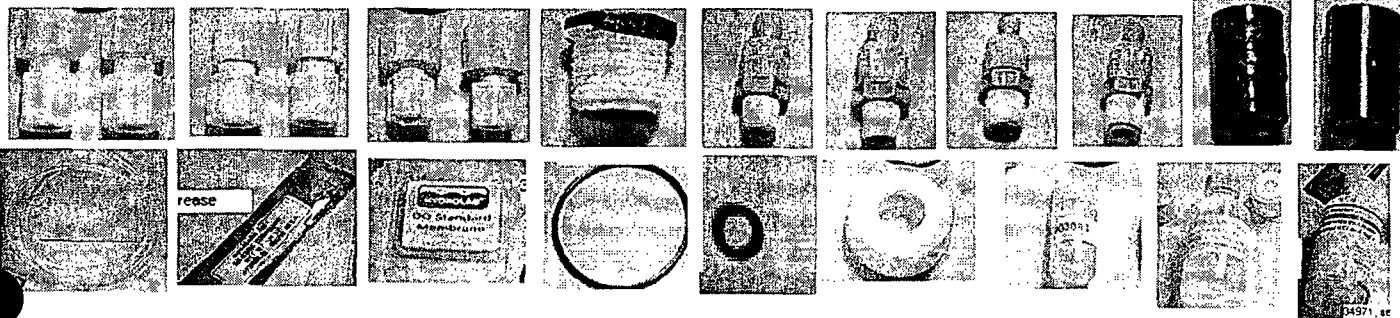
0

RESPONSE...

20

Factory certified
Service center

ACCESSORIES INCLUDED WITH THIS RENTAL KIT



THANK YOU FOR RENTING FROM EQUIPCO

This instrument has been thoroughly tested by a factory certified service technician before delivery to you.
If you have any questions or difficulties please call us immediately and request technical support.

1-800-550-5875



QED Model MP20DT Calibration & Checkout Sheet

TECHNICIAN: [Signature]

DATE: 7/7/06

INSTRUMENT INFORMATION

RENTAL ID#: MP20DT. 02

SERIAL NUMBER: QNO2348

CALIBRATION INFORMATION

SENSOR RANGES...

pH 0-14 Units
DO 0-500%
ORP -999 to +999
Cond. 0-100mS/cm
Turb. 0-1000NTU

CONDUCTIVITY...

☒ Lot# 520

pH ZERO...

☐ Lot# _____

pH SLOPE... 6025

☒ Lot# 6095
5191

DISSOLVED OXYGEN...

☒ Lot# _____

REDOX...

☒ Lot# 515/07

TURBIDITY ZERO

☒ Lot# N/A

TURBIDITY SPAN

☒ Lot# 7/7/06

RESPONSE...

1.800

RESPONSE...

RESPONSE...

7.418

RESPONSE...

1.00

RESPONSE...

2.310

RESPONSE...

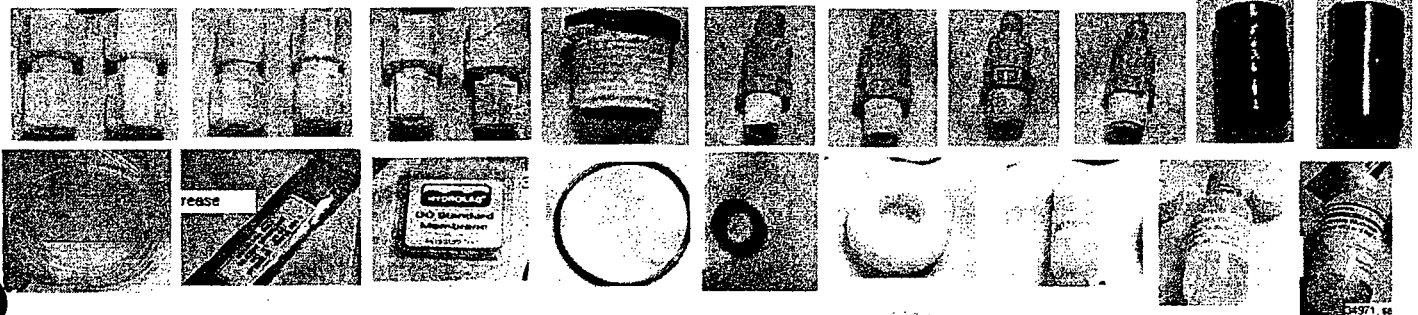
N/A

RESPONSE...

2.0

Factory certified
Service center

ACCESSORIES INCLUDED WITH THIS RENTAL KIT



THANK YOU FOR RENTING FROM EQUIPCO

This instrument has been thoroughly tested by a factory certified service technician before delivery to you.
If you have any questions or difficulties please call us immediately and request technical support.

1-800-550-5875



ARCADIS

Appendix I

Waste Disposal
Documentation

NO. 30642

NON-HAZARDOUS WASTE DATA FORM

12

TO BE COMPLETED BY GENERATOR

GENERATING SITE

NAME Omega Chemical OU-2 Omega Project

ADDRESS 12504 Whittier Blvd. Geary Street
Whittier, CA 90602 (and vicinity)
Santa Fe Springs, CA

CITY, STATE, ZIP

PHONE NO. () SITE CONTACT PROFILE NO.

CONTAINERS: No. 1 GALLONS X 50 Gallons WEIGHT

TYPE: ☒ TANK TRUCK ☐ DUMP TRUCK ☐ DRUMS ☐ CARTONS ☐ OTHER Drilling, Groundwater

WASTE DESCRIPTION NON-HAZARDOUS WATER and/or Decon Water

COMPONENTS OF WASTE PPM % GENERATING PROCESS COMPONENTS OF WASTE PPM %

1. WATER 99-100% 4. BESI # 125785

2. TPH < 0.1% 5.

3. VOC's < 0.1% 6.

PROPERTIES pH 7 ☐ SOLID ☒ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER

HANDLING INSTRUCTIONS: WEAR APPROPRIATE PROTECTIVE CLOTHING

THE GENERATOR CERTIFIES THAT THE
WASTE AS DESCRIBED IS 100%
NON-HAZARDOUS.

Larry Moothart as Agent of Omega Chemical

07/ 03 / 06

TYPED OR PRINTED FULL NAME & SIGNATURE

DATE

TRANSPORTER

NAME NIETO AND SONS TRUCKING, INC. EPA I.D. NO.

ADDRESS 1281 BREA CANYON ROAD SERVICE ORDER NO.

CITY, STATE, ZIP BREA, CALIFORNIA 92821 PICK UP DATE 07/ 03 / 06

PHONE NO. (714) 990-6855 ALBERT GARCIA 07/ 03 / 06

TRUCK, UNIT, I.D. NO. X240-377 TYPED OR PRINTED FULL NAME & SIGNATURE DATE

TSD FACILITY

NAME DeMenno Kerdoon EPA I.D. NO.

ADDRESS 2000 N. Alameda Street DISPOSAL METHOD ☐ LANDFILL ☒ RECYCLER

CITY, STATE, ZIP Compton, CA 90222 Recycler

PHONE NO. 310-537-7100

FAC# OMEGA SOPAL P. SUAY 07/ 03 / 06

ID# 171131 TYPED OR PRINTED FULL NAME & SIGNATURE DATE

GEN	OLD/NEW	L	A	TONS
TRANS		S	B	
C/O		RT/CD	HWDF	NONE

DISCREPANCY

NO. 29468

NON-HAZARDOUS WASTE DATA FORM

6

TO BE COMPLETED BY GENERATOR

GENERATING SITE

NAME Omega Chemical OU-2 Omega Project

ADDRESS 12504 Whittier Blvd. 12035 Burke Street

CITY, STATE, ZIP Whittier, CA 90602 Santa Fe Springs, CA

PHONE NO. () SITE CONTACT PROFILE NO.

CONTAINERS: No. 1 GALLONS 550 Gallons WEIGHT

TYPE: ☒ TANK TRUCK ☐ DUMP TRUCK ☐ DRUMS ☐ CARTONS ☐ OTHER

WASTE DESCRIPTION NON-HAZARDOUS MUD / water GENERATING PROCESS Drilling Mud / Ground

COMPONENTS OF WASTE PPM % COMPONENTS OF WASTE PPM %

1. water 99-100 4.

2. TPH 4 5.

3. BESI # 125785 6.

PROPERTIES pH 7 ☐ SOLID ☒ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER

HANDLING INSTRUCTIONS: WEAR APPROPRIATE PROTECTIVE CLOTHING

THE GENERATOR CERTIFIES THAT THE
WASTE AS DESCRIBED IS 100%
NON-HAZARDOUS.

Larry Moothart as Agent of Omega Chemical

05/ 30 / 06

TYPED OR PRINTED FULL NAME & SIGNATURE

DATE

TRANSPORTER

NAME NIETO AND SONS TRUCKING, INC. EPA I.D. NO.

ADDRESS 1281 BREA CANYON ROAD SERVICE ORDER NO.

CITY, STATE, ZIP BREA, CALIFORNIA 92821 PICK UP DATE 05/ 30 / 06

PHONE NO. (714) 990-6855 05/ 30 / 06

TRUCK, UNIT, I.D. NO. 252 05/ 30 / 06

TYPED OR PRINTED FULL NAME & SIGNATURE

DATE

TSD FACILITY

NAME DeMenno Kerdoon EPA I.D. NO.

ADDRESS 2000 N. Alameda Street DISPOSAL METHOD

CITY, STATE, ZIP Compton, CA 90222 ☐ LANDFILL ☐ RECYCLER

PHONE NO. (310) 537-7100

AC# DMEGA

110756

TYPED OR PRINTED FULL NAME & SIGNATURE

DATE

GEN	OLD/NEW	L	A	TONS
TRANS		S	B	
C/Q		RT/CD	HWDF	NONE

DISCREPANCY

NO. ² 29609

NON-HAZARDOUS WASTE DATA FORM

TO BE COMPLETED BY GENERATOR

NAME Omega Chemical OU-2 GENERATING SITE Omega Project

ADDRESS 12504 Whittier Blvd. Geary Street
(and vicinity)

CITY, STATE, ZIP Whittier, CA 90602 Santa Fe Springs, CA

PHONE NO. () SITE CONTACT PROFILE NO.

CONTAINERS: No. 1 GALLONS 3500 Gallons WEIGHT

TYPE: ☒ TANK TRUCK ☐ DUMP TRUCK ☐ DRUMS ☐ CARTONS ☐ OTHER Drilling, Groundwater

WASTE DESCRIPTION NON-HAZARDOUS WATER GENERATING PROCESS and/or Decon Water

COMPONENTS OF WASTE PPM % COMPONENTS OF WASTE PPM %

1. WATER 99-100% 4.

2. TPH < 0.1% 5.

3. VOC's < 0.1% 6. BESI # 125785

PROPERTIES pH 7 ☐ SOLID ☒ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER

HANDLING INSTRUCTIONS: WEAR APPROPRIATE PROTECTIVE CLOTHING

THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS.

Larry Moothart as Agent of Omega Chemical 06/ 13 / 06

TYPED OR PRINTED FULL NAME & SIGNATURE DATE

TRANSPORTER

NAME NIETO AND SONS TRUCKING, INC. EPA I.D. NO.

ADDRESS 1281 BREA CANYON ROAD SERVICE ORDER NO.

CITY, STATE, ZIP BREA, CALIFORNIA 92821 PICK UP DATE 06/ 13 / 06

PHONE NO. (714) 990-6855

DeMenno Kerdoon 06/ 13 / 06

TRUCK, UNIT, I.D. NO. X TYPED OR PRINTED FULL NAME & SIGNATURE DATE

TSD FACILITY

NAME DeMenno Kerdoon EPA I.D. NO.

ADDRESS 2000 N. Alameda Street DISPOSAL METHOD ☐ LANDFILL ☒ RECYCLER

CITY, STATE, ZIP Compton, CA 90222 Recycler

PHONE NO. 310-537-7100

FAC# OMEGA 06/20/06

ID# 1104861 TYPED OR PRINTED FULL NAME & SIGNATURE DATE

GEN	OLD/NEW	L	A	TONS
TRANS		S	B	
C/O		RT/CD	HWDF	NONE

DISCREPANCY

NO. 29548

NON-HAZARDOUS WASTE DATA FORM

TO BE COMPLETED BY GENERATOR

GENERATING SITE

NAME Omega Chemical OU-2Omega ProjectADDRESS 12504 Whittier Blvd.Garey Street(and vicinity)CITY, STATE, ZIP Whittier, CA 90602Santa Fe Springs, CA

PHONE NO. ()

SITE
CONTACT

PROFILE NO.

CONTAINERS: No. 1 GALLONS 4660 Gallons

W13GHT

TYPE:

☒ TANK
TRUCK☐ DUMP
TRUCK☐ DRUMS☐ CARTONS☐ OTHERDrilling, GroundwaterWASTE DESCRIPTION NON-HAZARDOUS WATERGENERATING PROCESS and/or Decon Water

COMPONENTS OF WASTE

PPM

%

1. WATER 99-100%

4.

2. TPH < 0.1%

5.

3. VOC's < 0.1%

6.

BESI # 125785

PROPERTIES

pH

7☐ SOLID☒ LIQUID☐ SLUDGE☐ SLURRY☐ OTHER

HANDLING INSTRUCTIONS:

WEAR APPROPRIATE PROTECTIVE CLOTHINGTHE GENERATOR CERTIFIES THAT THE
WASTE AS DESCRIBED IS 100%
NON-HAZARDOUS.Larry Moothart as Agent of Omega Chemical06/ 08 / 06

TYPED OR PRINTED FULL NAME & SIGNATURE

DATE

TRANSPORTER

NAME NIETO AND SONS TRUCKING, INC.EPA
I.D.
NO.ADDRESS 1281 BREA CANYON ROAD

SERVICE ORDER NO.

CITY, STATE, ZIP BREA, CALIFORNIA 92821

PICK UP DATE

06/ 08 / 06PHONE NO. (714) 990-685506/ 08 / 06TRUCK, UNIT, I.D. NO. 244-325

TYPED OR PRINTED FULL NAME & SIGNATURE

DATE

TSD FACILITY

NAME DeMenno KerdoonEPA
I.D.
NO.ADDRESS 2000 N. Alameda Street

DISPOSAL METHOD

☐ LANDFILL☒ RECYCLERCITY, STATE, ZIP Compton, CA 90222RecyclerPHONE NO. 310-537-7100FAC# DMEGAID# 102714

TYPED OR PRINTED FULL NAME & SIGNATURE

DATE

GEN

OLD/NEW

L

A

TONS

TRANS.

S

B

C/Q

RT/CD

HWDF

NONE

DISCREPANCY

NO.

29549

NON-HAZARDOUS WASTE DATA FORM

TO BE COMPLETED BY GENERATOR

GENERATING SITE

NAME Omega Chemical OU-2
ADDRESS 12504 Whittier Blvd.
CITY, STATE, ZIP Whittier, CA 90602
PHONE NO. () SITE CONTACT PROFILE NO.

Omega Project
Burke & Sorrenson
(and vicinity)
Santa Fe Springs, CA

CONTAINERS: No. 1 GALLONS 500 Gallons WEIGHT

TYPE: ☒ TANK TRUCK ☐ DUMP TRUCK ☐ DRUMS ☐ CARTONS ☐ OTHER Drilling, Groundwater

WASTE DESCRIPTION NON-HAZARDOUS WATER GENERATING PROCESS and/or Decon Water

COMPONENTS OF WASTE	PPM	%	COMPONENTS OF WASTE	PPM	%
1. <u>WATER</u>	<u>99-100%</u>		4. <u> </u>		
2. <u>TPH</u>	<u><0.1%</u>		5. <u> </u>		
3. <u>VOC's</u>	<u><0.1%</u>		6. <u>BESI # 125785</u>		

PROPERTIES pH 7 ☐ SOLID ☒ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER

HANDLING INSTRUCTIONS: WEAR APPROPRIATE PROTECTIVE CLOTHING

THE GENERATOR CERTIFIES THAT THE
WASTE AS DESCRIBED IS 100%
NON-HAZARDOUS.

Larry Moothart as Agent of Omega Chemical

06/ 08 / 06

TYPED OR PRINTED FULL NAME & SIGNATURE

DATE

TRANSPORTER

NAME NIETO AND SONS TRUCKING, INC. EPA ID. NO.
ADDRESS 1281 BREA CANYON ROAD SERVICE ORDER NO.
CITY, STATE, ZIP BREA, CALIFORNIA 92821 PICK UP DATE 06/ 08 / 06
PHONE NO. (714) 990-6855 Miguel Garcia Muecel, Son 06/ 08 / 06
TRUCK, UNIT, I.D. NO. 244-367 TYPED OR PRINTED FULL NAME & SIGNATURE DATE

DISPOSAL FACILITY

NAME DeMenno Kerdoon EPA ID. NO.
ADDRESS 2000 N. Alameda Street DISPOSAL METHOD ☐ LANDFILL ☒ RECYCLER
CITY, STATE, ZIP Compton, CA 90222 Recycler
PHONE NO. 310-537-7100
FAC# OMEGA subscribed 6/8/06
ID# 1102713 TYPED OR PRINTED FULL NAME & SIGNATURE DATE

GEN	OLD/NEW	L	A	TONS
TRANS		S	B	
C/Q		RT/CD	HWDF	NONE

DISCREPANCY

NO. 29464

NON-HAZARDOUS WASTE DATA FORM

5

TO BE COMPLETED BY GENERATOR

NAME <u>Omega Chemical OU-2</u>		GENERATING SITE <u>Omega Project</u>	
ADDRESS <u>12504 Whittier Blvd.</u>		<u>12035 Burke Street</u>	
CITY, STATE, ZIP <u>Whittier, CA 90602</u>		<u>Santa Fe Springs, CA</u>	
PHONE NO. ()	SITE CONTACT	PROFILE NO.	
CONTAINERS: No. <u>1</u>		GALLONS <u>2000</u> Gallons	WEIGHT
TYPE: <input checked="" type="checkbox"/> TANK TRUCK <input type="checkbox"/> DUMP TRUCK <input type="checkbox"/> DRUMS <input type="checkbox"/> CARTONS <input type="checkbox"/> OTHER			
WASTE DESCRIPTION <u>NON-HAZARDOUS MUD</u>		GENERATING PROCESS <u>Drilling Mud</u>	
COMPONENTS OF WASTE PPM %		COMPONENTS OF WASTE PPM %	
1.		4.	
2.		5.	
3.		6. <u>BESI # 125785</u>	
PROPERTIES pH <u>7</u> <input type="checkbox"/> SOLID <input checked="" type="checkbox"/> LIQUID <input type="checkbox"/> SLUDGE <input type="checkbox"/> SLURRY <input type="checkbox"/> OTHER			
HANDLING INSTRUCTIONS: <u>WEAR APPROPRIATE PROTECTIVE CLOTHING</u>			
THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS.		Typed or Printed Full Name & Signature <u>Larry Moothart as Agent of Omega Chemical</u> DATE <u>05/26/06</u>	

TRANSPORTER

NAME <u>NIETO AND SONS TRUCKING, INC.</u>		EPA I.D. NO.	
ADDRESS <u>1281 BREA CANYON ROAD</u>		SERVICE ORDER NO.	
CITY, STATE, ZIP <u>BREA, CALIFORNIA 92821</u>		PICK UP DATE <u>05/26/06</u>	
PHONE NO. <u>(714) 990-6855</u>			
TRUCK, UNIT, I.D. NO. <u>238-000</u>		Typed or Printed Full Name & Signature <u>GILBERT GARCIA</u> DATE <u>05/26/06</u>	

TSD FACILITY

NAME <u>DeMenno Kerdoon</u>		EPA I.D. NO.	
ADDRESS <u>2000 N. Alameda Street</u>		DISPOSAL METHOD <input type="checkbox"/> LANDFILL <input type="checkbox"/> RECYCLER	
CITY, STATE, ZIP <u>Compton, CA 90222</u>			
PHONE NO. <u>(310) 537-7100</u>			
Typed or Printed Full Name & Signature <u>Gilbert Echecosa</u>		DATE <u>5/31/06</u>	

GEN	OLD/NEW	L	A	TONS
TRANS		S	B	
C/Q		RT/CD	HWDF	

DISCREPANCY

NO.

29061

NON-HAZARDOUS WASTE DATA FORM

GENERATING SITE

NAME

Omega Chemical Co-2

Burke E. Greenman

ADDRESS

42504 Whittier Blvd

Santa Fe Springs

CITY, STATE, ZIP

Whittier, Ca. 90602

PHONE NO.

()

SITE

CONTACT

PROFILE NO.

CONTAINERS: No.

GALLONS

2550

WEIGHT

TYPE:

☒ TANK TRUCK☐ DUMP TRUCK☐ DRUMS☐ CARTONS☐ OTHER

WASTE DESCRIPTION

COMPONENTS OF WASTE

PPM

%

GENERATING PROCESS

COMPONENTS OF WASTE

PPM

%

1

water

99-100

4

BEST POT 125785

2

PH

<1

5

3

PROPERTIES

pH 210

☐ SOLID☒ LIQUID☐ SLUDGE☐ SLURRY☐ OTHER

HANDLING INSTRUCTIONS:

wear all appropriate protective clothing

THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS.

LARRY MOOTWET-Belshie

5/24/06

TYPED OR PRINTED FULL NAME & SIGNATURE

Br generator

DATE

NAME

NIETO AND SONS TRUCKING, INC.

EPA
I.D.
NO.

ADDRESS

1281 BREA CANYON ROAD

SERVICE ORDER NO.

CITY, STATE, ZIP

BREA, CALIFORNIA 92821

PICK UP DATE

PHONE NO.

(714) 990-6855

TRUCK, UNIT, I.D. NO.

245

TYPED OR PRINTED FULL NAME & SIGNATURE

J Nieto S Nieto

SA 5/24/06

DATE

NAME

Demienno Kerdoon

EPA
I.D.
NO.

ADDRESS

2000 N. Alameda St.

DISPOSAL METHOD

☐ LANDFILL☒ RECYCLER

CITY, STATE, ZIP

Compton, Ca. 90222

PHONE NO.

310-537-7100

FAC#

OMEGA

ID#

141730

TYPED OR PRINTED FULL NAME & SIGNATURE

SOPHIA P. SVAJDA May 6/5/06

DATE

GEN

OLD/NEW

L

A

TONS

TRANS

S

B

C/Q

RT/CD

HWDF

NONE

DISCREPANCY

NO.

52718
29426

NON-HAZARDOUS WASTE DATA FORM

GENERATING SITE

NAME Omega Chemical OU-2 Omega Project

ADDRESS 12504 Whittier Blvd. Arlee Avenue & Terradell Street
(and vicinity)

CITY, STATE, ZIP Whittier, CA 90602 Santa Fe Springs, CA

PHONE NO. () SITE CONTACT PROFILE NO. 705-240-0Y

CONTAINERS: No. 1 GALLONS 4000 Gallons WEIGHT

TYPE: ☒ TANK TRUCK ☐ DUMP TRUCK ☐ DRUMS ☐ CARTONS ☐ OTHER

WASTE DESCRIPTION NON-HAZARDOUS MUD GENERATING PROCESS Drilling Mud

COMPONENTS OF WASTE PPM % COMPONENTS OF WASTE PPM %

1. 4.

2. 5.

3. 6. BESI # 125785

PROPERTIES pH 7 ☐ SOLID ☒ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER

HANDLING INSTRUCTIONS: WEAR APPROPRIATE PROTECTIVE CLOTHING

THE GENERATOR CERTIFIES THAT THE
WASTE AS DESCRIBED IS 100%
NON-HAZARDOUS.

Larry Moothart as Agent of Omega Chemical

05/ 24 / 06

TYPED OR PRINTED FULL NAME & SIGNATURE

DATE

NAME NIETO AND SONS TRUCKING, INC. EPA I.D. NO.

ADDRESS 1281 BREA CANYON ROAD SERVICE ORDER NO.

CITY, STATE, ZIP BREA, CALIFORNIA 92821 PICK UP DATE 05/ 24 / 06

PHONE NO. (714) 990-6855 Manuel Garcia Manuel Garcia 05/ 24 / 06

TRUCK, UNIT, I.D. NO. 244-328 TYPED OR PRINTED FULL NAME & SIGNATURE DATE

NAME Liquid Waste Management EPA I.D. NO.

ADDRESS 56533 Highway 58 DISPOSAL METHOD ☐ LANDFILL ☐ RECYCLER

CITY, STATE, ZIP McKittrick, CA 93251 SOLIDIFICATION

PHONE NO. (661) 762-7607 MIKE RIVERS 5/26/06

TYPED OR PRINTED FULL NAME & SIGNATURE

DATE

GEN	OLD/NEW	L	A	TONS
TRANS		S	B	
C/Q		RT/CD	HWDF	NONE

DISCREPANCY

Manifest

TPST Soil Recyclers of CA

Non-Hazardous Soils

Manifest

Date of Shipment: 5/2/06	Responsible for Payment: BESI	Transporter Truck #: 418/732	Facility #: 07	Given by TPST: 26991	Load #: 10104
------------------------------------	---	--	--------------------------	--------------------------------	-------------------------

Generator's Name and Billing Address: OMEGA CHEMICAL OU-2 12504 WHITTIER BLVD. WHITTIER, CA 90602	Generator's Phone #:	Generator's US EPA ID No.
	Person to Contact:	
	FAX#:	Customer Account Number with TPST:

Consultant's Name and Billing Address: ARCADIS GERAGHTY & MILLER	Consultant's Phone #:	
	Person to Contact:	
	FAX#:	Customer Account Number with TPST:

Generation Site (Transport from): (name & address) OMEGA PROJECT 10135 GEARY AVENUE WHITTIER, CA 90602	Site Phone #:	BTEX Levels
	Person to Contact:	TPH Levels
	FAX#:	AVG. Levels

Designated Facility (Transport to): (name & address) TPST SOIL RECYCLERS OF CA 12328 HIBISCUS AVENUE ADELANTO, CA 92301	Facility Phone #: 800-862-8001	Facility Permit Numbers
	Person to Contact: DELLENA JEFFREY	
	FAX#: 760-246-8004	

Transporter Name and Mailing Address: BELSHIRE ENVIRONMENTAL 25971 TOWNE CENTRE DRIVE LAKE FOREST, CA 92610 BESI# 124565.03	Transporter's Phone #: 949-460-5200	Transporter's US EPA ID No.: CAR000165175
	Person to Contact: LARRY MOOTHART	Transporter's DOT No.: 450647
	FAX#: 949-460-5210	Customer Account Number with TPST: 1000193

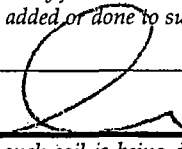
Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand <input type="checkbox"/> Organic <input type="checkbox"/> Clay <input type="checkbox"/> Other <input type="checkbox"/>	0 - 10% <input type="checkbox"/> 10 - 20% <input type="checkbox"/> 20% - over <input type="checkbox"/>	Gas <input type="checkbox"/> Diesel <input type="checkbox"/> Other <input type="checkbox"/>			41420	31800	4610
Sand <input type="checkbox"/> Organic <input type="checkbox"/> Clay <input type="checkbox"/> Other <input type="checkbox"/>	0 - 10% <input type="checkbox"/> 10 - 20% <input type="checkbox"/> 20% - over <input type="checkbox"/>	Gas <input type="checkbox"/> Diesel <input type="checkbox"/> Other <input type="checkbox"/>					2.31

List any exception to items listed above:

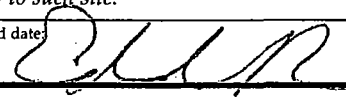
Scale Ticket#

18457

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

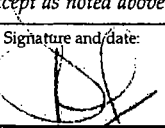
Print or Type Name:	Generator <input type="checkbox"/> Consultant <input type="checkbox"/>	Signature and date:	Month	Day	Year
LARRY MOOTHART (BESI ON BEHALF OF GENERATOR)			5	26	06

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Ed Ramon (39CT)		5	26	06

Discrepancies:
FAC# OMEGA ID# 1101080

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
	 5/26/06

Generator and/or Consultant

Transporter

Recycling Facility

Please print or type

TRANSPORTED COPY

Manifest

TPST Soil Recyclers of CA

Non-Hazardous Soils

Manifest #

Date of Shipment:

5/8/06

Responsible for Payment:

BESI

Transporter Truck #:

418 1734

Facility #:

07

Given by TPST:

25312

Load #

1005

Generator's Name and Billing Address:

OMEGA CHEMICAL OU-2
12504 WHITTIER BLVD.
WHITTIER, CA 90602

Generator's Phone #:

Generator's US EPA ID No.

Person to Contact:

FAX#:

Customer Account Number with TPST:

Consultant's Name and Billing Address:

ARCADIS GERAGHTY & MILLER

Consultant's Phone #:

Person to Contact:

FAX#:

Customer Account Number with TPST:

Generation Site (Transport from): (name & address)

OMEGA PROJECT
WASHINGTON BLVD & LAMBERT ST.
WHITTIER, CA 90602

Site Phone #:

BTEX
Levels

Person to Contact:

TPH
Levels

FAX#:

AVG.
Levels

Designated Facility (Transport to): (name & address)

TPST SOIL RECYCLERS OF CA
12328 HIBISCUS AVENUE
ADELANTO, CA 92301

Facility Phone #:

800-862-8001

Facility Permit Numbers

Person to Contact:

DELLENA JEFFREY

FAX#:

760-246-8004

Transporter Name and Mailing Address:

BELSHIRE ENVIRONMENTAL
25971 TOWNE CENTRE DRIVE
LAKE FOREST, CA 92610

BESI# 124565.03

Transporter's Phone #:

949-460-5200

Transporter's US EPA ID No.:

CAR000165175

Person to Contact:

LARRY MOOTHART

Transporter's DOT No.:

450647

FAX#:

949-460-5210

Customer Account Number with TPST:

1000193

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand <input type="checkbox"/> Organic <input type="checkbox"/> Clay <input type="checkbox"/> Other <input type="checkbox"/>	0 - 10% <input type="checkbox"/> 10 - 20% <input type="checkbox"/> 20% - over <input type="checkbox"/>	Gas <input type="checkbox"/> Diesel <input type="checkbox"/> Other <input type="checkbox"/>			46500	36000	10400
Sand <input type="checkbox"/> Organic <input type="checkbox"/> Clay <input type="checkbox"/> Other <input type="checkbox"/>	0 - 10% <input type="checkbox"/> 10 - 20% <input type="checkbox"/> 20% - over <input type="checkbox"/>	Gas <input type="checkbox"/> Diesel <input type="checkbox"/> Other <input type="checkbox"/>					5.20

List any exception to items listed above:

Scale Ticket#

17879

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name:

Generator ☐Consultant ☐

Signature and date:

Month Day Year

LARRY MOOTHART (REST ON BEHALF OF GENERATOR)

5/8/06

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:

Earl P. Ramos

(41CT)

Signature and date:

Month Day Year

5/8/06

Discrepancies:

FAC# OMEGA

ID# 161081

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:

Signature and date:

5/8/06

Generator and/or Consultant

Transporter

Recycling Facility

Please print or type

Manifest

TPST Soil Recyclers of CA
Non-Hazardous Soils

Manifest

Date of Shipment: 5/24/06	Responsible for Payment: BESI	Transporter Truck #: 418/732	Facility #: 07	Given by TPST: 26991	Load #: 10101
-------------------------------------	---	--	--------------------------	--------------------------------	-------------------------

Generator's Name and Billing Address:

**OMEGA CHEMICAL OU-2
12504 WHITTIER BLVD.
WHITTIER, CA 90602**

Generator's Phone #:

Generator's US EPA ID No.

Person to Contact:

FAX#:

Customer Account Number with TPST:

Consultant's Name and Billing Address:

ARCADIS GERAGHTY & MILLER

Consultant's Phone #:

Person to Contact:

FAX#:

Customer Account Number with TPST:

Generation Site (Transport from): (name & address)

**OMEGA PROJECT
10135 GEARY AVENUE
WHITTIER, CA 90602**

Site Phone #:

BTEX
Levels

Person to Contact:

TPH
Levels

FAX#:

AVG.
Levels

Designated Facility (Transport to): (name & address)

**TPST SOIL RECYCLERS OF CA
12328 HIBISCUS AVENUE
ADELANTO, CA 92301**

Facility Phone #:

800-862-8001

Facility Permit Numbers

Person to Contact:

DELLENA JEFFREY

FAX#:

760-246-8004

Transporter Name and Mailing Address:

**BELSHIRE ENVIRONMENTAL
25971 TOWNE CENTRE DRIVE
LAKE FOREST, CA 92610****BESI# 124565.03**

Transporter's Phone #:

949-460-5200

Transporter's US EPA ID No.:

CAR000165175

Person to Contact:

LARRY MOOTHART

Transporter's DOT No.:

450647

FAX#:

949-460-5210

Customer Account Number with TPST:

1000193

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand <input type="checkbox"/> Organic <input type="checkbox"/> Clay <input type="checkbox"/> Other <input type="checkbox"/>	0 - 10% <input type="checkbox"/> 10 - 20% <input type="checkbox"/> 20% - over <input type="checkbox"/>	Gas <input type="checkbox"/> Diesel <input type="checkbox"/> Other <input type="checkbox"/>		2 Bins	41640	4270	5480
Sand <input type="checkbox"/> Organic <input type="checkbox"/> Clay <input type="checkbox"/> Other <input type="checkbox"/>	0 - 10% <input type="checkbox"/> 10 - 20% <input type="checkbox"/> 20% - over <input type="checkbox"/>	Gas <input type="checkbox"/> Diesel <input type="checkbox"/> Other <input type="checkbox"/>					2.71

List any exception to items listed above:

Scale Ticket#

18353

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name:

Generator ☐Consultant ☐

Signature and date:

Month

Day

Year

LARRY MOOTHART (BESI ON BEHALF OF GENERATOR)**5****24****06**

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:

F. Ramus (O3CT, 39CT)

Signature and date:

Month

Day

Year

5**24****06**

Discrepancies:

FAC# **OMEGA**ID# **101079**

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:

Signature and date:

5/24/06

NO. 28224

NON-HAZARDOUS WASTE DATA FORM

TO BE COMPLETED BY GENERATOR

NAME <u>Omega Chemical OU-2</u>		GENERATING SITE <u>Omega Project</u>	
ADDRESS <u>12504 Whittier Blvd.</u>		<u>Washington & Lambert Road</u>	
CITY, STATE, ZIP <u>Whittier, CA 90602</u>		<u>(and vicinity)</u>	
PHONE NO. ()		SITE CONTACT	
CONTAINERS: No. <u>1</u>		GALLONS <u>X 1000</u> Gallons	
TYPE: <input checked="" type="checkbox"/> TANK TRUCK <input type="checkbox"/> DUMP TRUCK <input type="checkbox"/> DRUMS <input type="checkbox"/> CARTONS <input type="checkbox"/> OTHER		<u>Drilling, Groundwater</u>	
WASTE DESCRIPTION <u>NON-HAZARDOUS WATER</u>		GENERATING PROCESS <u>and/or Decon Water</u>	
COMPONENTS OF WASTE		COMPONENTS OF WASTE	
1. <u>WATER</u>	<u>99-100%</u>	4. _____	_____
2. <u>TPH</u>	<u>< 0.1%</u>	5. _____	_____
3. <u>VOC's</u>	<u>< 0.1%</u>	6. <u>BESI # 125025</u>	_____
PROPERTIES	pH <u>7</u> <input type="checkbox"/> SOLID <input checked="" type="checkbox"/> LIQUID <input type="checkbox"/> SLUDGE <input type="checkbox"/> SLURRY <input type="checkbox"/> OTHER		
HANDLING INSTRUCTIONS: <u>WEAR APPROPRIATE PROTECTIVE CLOTHING</u>			
<div style="border: 1px solid black; padding: 2px;"> THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS. </div>		<u>Larry Moothart as Agent of Omega Chemical</u> TYPED OR PRINTED FULL NAME & SIGNATURE	
		<u>05/ 08 / 06</u> DATE	

TRANSPORTER

NAME <u>NIETO AND SONS TRUCKING, INC.</u>		EPA I.D. NO. _____	
ADDRESS <u>1281 BREA CANYON ROAD</u>		SERVICE ORDER NO. _____	
CITY, STATE, ZIP <u>BREA, CALIFORNIA 92821</u>		PICK UP DATE <u>05/ 08 / 06</u>	
PHONE NO. <u>(714) 990-6855</u>		<u>Michael Garcia</u> TYPED OR PRINTED FULL NAME & SIGNATURE	
TRUCK, UNIT, I.D. NO. <u>X 244-321</u>		<u>05/ 08 / 06</u> DATE	

TSD FACILITY

NAME <u>DeMenno Kerdoon</u>		EPA I.D. NO. _____	
ADDRESS <u>2000 N. Alameda Street</u>		DISPOSAL METHOD	
CITY, STATE, ZIP <u>Compton, CA 90222</u>		<input type="checkbox"/> LANDFILL <input checked="" type="checkbox"/> RECYCLER	
PHONE NO. <u>310-537-7100</u>		<u>Recycler</u>	
<u>ON 5/8/06</u> TYPED OR PRINTED FULL NAME & SIGNATURE		<u>5/8/06</u> DATE	

GEN	OLD/NEW	L	A	TONS
TRANS		S	B	
C/Q		RT/CD	HWDF	NONE

DISCREPANCY

ARCADIS

Appendix J

Depth Discrete Laboratory
Reports

UNSCANNABLE MEDIA

To use the unscannable media document # 2154794
contact the Region IX Superfund Records Center
at 415-536-2000.

ARCADIS

Appendix K

Groundwater Sampling
Laboratory Reports

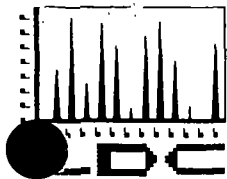
UNSCANNABLE MEDIA

To use the unscannable media document # 2154795
contact the Region IX Superfund Records Center
at 415-536-2000.

ARCADIS

Appendix L

EPA Level III QC Review of
Select Laboratory Reports



LABORATORY DATA CONSULTANTS, INC.

7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

Arcadis
1400 North Harbor Blvd, Suite 700
Fullerton, CA 92835
ATTN: Mr. Ron Halpern

August 30, 2006

SUBJECT: Omega Chemical, Data Validation

Dear Mr. Halpern,

Enclosed are the final validation reports for the fractions listed below. This SDG was received on August 10, 2006. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 15355:

SDG #

Fraction

06G039


Volatiles, 1,2,3-Trichloropropane, Semivolatiles, 1,4-Dioxane, N-Nitrosodimethylamine, Dissolved Metals, Wet Chemistry

The data validation was performed under EPA Level III guidelines. The analyses were validated using the following documents, as applicable to each method:

- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998

Please feel free to contact us if you have any questions.

Sincerely,


Stella S. Cuenco
Project Manager/Senior Chemist

90/10

LDC #15355 (Arcadis-Los Angeles, CA / Omega Chemical)

[illegible]

**Omega Chemical
Data Validation Reports
LDC# 15355**

Volatiles

LDC

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Omega Chemical
Collection Date: July 10, 2006
LDC Report Date: August 25, 2006
Matrix: Water
Parameters: Volatiles
Validation Level: EPA Level III
Laboratory: EMAX Laboratories, Inc.
Sample Delivery Group (SDG): 06G039

Sample Identification

OC2-PMW15-0-17
OC2-PMW15-0-17DL
OC2-PMW18A-0-22
OC2-PMW18B-0-23
OC2-PMW15-0-17MS
OC2-PMW15-0-17MSD

Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
7/6/06	Acetone	0.036 (≥ 0.05)	All samples in SDG 06G039	J (all detects)	A
	2-Butanone	0.040 (≥ 0.05)		UJ (all non-detects) J (all detects) UJ (all non-detects)	

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
7/14/06	Bromomethane Cyclohexane	26.9 31.2	OC2-PMW15-0-17 OC2-PMW18A-0-22 OC2-PMW18B-0-23 OC2-PMW15-0-17MS OC2-PMW15-0-17MSD MBLK2W	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
7/14/06	Acetone 2-Butanone	0.029 (≥ 0.05) 0.045 (≥ 0.05)	OC2-PMW15-0-17 OC2-PMW18A-0-22 OC2-PMW18B-0-23 OC2-PMW15-0-17MS OC2-PMW15-0-17MSD MBLK2W	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
7/15/06	Acetone 2-Butanone	0.029 (≥ 0.05) 0.043 (≥ 0.05)	OC2-PMW15-0-17DL MBLK3W	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

The percent difference (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) were not within QC limits. Since the sample concentration was greater than the spiked concentration, no data were qualified.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
OC2-PMW15-0-17	1,1-Dichloroethene Chloroform Tetrachloroethene Trichloroethene Trichlorofluoromethane FC 113	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

Omega Chemical
Volatiles - Data Qualification Summary - SDG 06G039

SDG	Sample	Compound	Flag	A or P	Reason
06G039	OC2-PMW15-0-17 OC2-PMW15-0-17DL OC2-PMW18A-0-22 OC2-PMW18B-0-23	Acetone 2-Butanone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
06G039	OC2-PMW15-0-17 OC2-PMW18A-0-22 OC2-PMW18B-0-23	Bromomethane Cyclohexane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
06G039	OC2-PMW15-0-17 OC2-PMW15-0-17DL OC2-PMW18A-0-22 OC2-PMW18B-0-23	Acetone 2-Butanone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF)
06G039	OC2-PMW15-0-17	1,1-Dichloroethene Chloroform Tetrachloroethene Trichloroethene Trichlorofluoromethane FC 113	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRQLs

Omega Chemical
Volatiles - Laboratory Blank Data Qualification Summary - SDG 06G039

No Sample Data Qualified in this SDG

LDC #: 15355A1a

VALIDATION COMPLETENESS WORKSHEET

SDG #: 06G039

Level III/IV

Laboratory: EMAX Laboratories, Inc.

Date: 8/23/06

Page: 1 of 1

Reviewer: OR2nd Reviewer: A

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 7/6/06
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	
IV.	Continuing calibration	SW	ICV $\leq 25\%$
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS / D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	SW	Not reviewed for Level III validation.
XIII.	Tentatively identified compounds (TICs)	N	Not reviewed for Level III validation.
XIV.	System performance	N	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW N	D = 3, 4
XVII.	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

Water

1	✓	OC2-PMW15-0-17	11	3	OC2-PMW18C-0-24	21	1	MBLK1W	31	
2	3	OC2-PMW15-0-17DL	12	✓	OC2-PMW15-0-17MS	22	✓	MBLK2W	32	
3	1	OC2-00-W-1-19 D	13	✓	OC2-PMW15-0-17MSD	23	3	MBLK3W	33	
4	✓	OC2-00-W-4-18 D	14			24			34	
5	1	OC2-PMW15-5-21	15			25			35	
6	✓	OC2-PMW15-5-21DL	16			26			36	
7	1	OC2-PMW15-1-20	17			27			37	
8	✓	OC2-PMW15-1-20DL	18			28			38	
9	✓	OC2-PMW18A-0-22**	19			29			39	
10	✓	OC2-PMW18B-0-23	20			30			40	

(no r²)

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260B)

A. Chloromethane*	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride**	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform*	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene**	BB. 1,1,2,2-Tetrachloroethane*	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane*	CC. Toluene**	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene*	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform**	EE. Ethylbenzene**	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. <i>FC 113</i>
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. <i>cyclohexane</i>
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

LDC #: 15355 A1a
SDG #: 000039

VALIDATION FINDINGS WORKSHEET

Page: 1 of 1
 Reviewer: NG
 2nd Reviewer: A

METHOD: GC/MS VOA (EPA SW 846 Method 8260)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Did the laboratory perform a 5 point calibration prior to sample analysis?

Y N N/A Were percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCC's and SPCC's?

Y (N) N/A Was a curve fit used for evaluation? If yes, what was the acceptance criteria used for evaluation? _____

Y N (N/A) Did the initial calibration meet the acceptance criteria?

Y (N) N/A Were all %RSDs and RRFs within the validation criteria of ≤ 30 %RSD and ≥ 0.05 RRF ?

[illegible]

SDG #: 06-34

Continuing Calibration

2nd Reviewer: 4

METHOD: GC/MS VOA (EPA SW 846 Method 8260)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

④ N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Were percent differences (%D) and relative response factors (RRF) within method criteria for all CCC's and SPCC's ?

Y (N) N/A Were all %D and RRFs within the validation criteria of ≤ 25 %D and ≥ 0.05 RRF ?

[illegible]

SDG #: 6039

Matrix Spike/Matrix Spike Duplicates

2nd Reviewer: a

METHOD : GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

(Y) N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y(N) N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

[illegible]

	Compound	QC Limits (Soll)	RPD (Soll)	QC Limits (Water)	RPD (Water)
H.	1,1-Dichloroethene	59-172%	≤ 22%	61-145%	≤ 14%
S.	Trichloroethene	62-137%	≤ 24%	71-120%	≤ 14%
V.	Benzene	66-142%	≤ 21%	76-127%	≤ 11%
CC.	Toluene	59-139%	≤ 21%	76-125%	≤ 13%
DD.	Chlorobenzene	60-133%	≤ 21%	75-130%	≤ 13%

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?

Y	N	N/A	Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?
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[illegible]

Comments: See sample calculation verification worksheet for recalculations

**Omega Chemical
Data Validation Reports
LDC# 15355**

1,2,3-Trichloropropane

LDC

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: Omega Chemical
Collection Date: July 10, 2006
LDC Report Date: August 24, 2006
Matrix: Water
Parameters: 1,2,3-Trichloropropane
Validation Level: EPA Level III
Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06G039

Sample Identification

OC2-PMW15-0-17
OC2-PMW18A-0-22
OC2-PMW18B-0-23

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,2,3-Trichloropropane.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals. All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds.

Average relative response factors (RRF) for all target compounds and system monitoring compounds were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% .

All of the continuing calibration RRF values were within validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

Omega Chemical

1,2,3-Trichloropropane - Data Qualification Summary - SDG 06G039

No Sample Data Qualified in this SDG

Omega Chemical

1,2,3-Trichloropropane - Laboratory Blank Data Qualification Summary - SDG 06G039

No Sample Data Qualified in this SDG

LDC #: 15355A1b

VALIDATION COMPLETENESS WORKSHEET

SDG #: 06G039

Level III/IV

Laboratory: EMAX Laboratories, Inc.

Date: 8/23/06

Page: 1 of 1

Reviewer: JVG

2nd Reviewer:

METHOD: GC/MS 1,2,3-Trichloropropane (EPA SW 846 Method 8260B-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 7/10/06
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Continuing calibration	A	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	N	Not reviewed for Level III validation.
XIII.	Tentatively identified compounds (TICs)	N	Not reviewed for Level III validation.
XIV.	System performance	N	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

Water

1	OC2-PMW15-0-17	11	MBLK1W	21		31	
2	OC2-PMW15-5-21	12		22		32	
3	OC2-PMW15-1-20	13		23		33	
4	OC2-PMW18A-0-22**	14		24		34	
5	OC2-PMW18B-0-23	15		25		35	
6	OC2-PMW18C-0-24	16		26		36	
7	OC2-PMW18C-0-24MS	17		27		37	
8	OC2-PMW18C-0-24MSD-	18		28		38	
9		19		29		39	
10		20		30		40	

**Omega Chemical
Data Validation Reports
LDC# 15355**

Semivolatiles

1000

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: Omega Chemical
Collection Date: July 10, 2006
LDC Report Date: August 24, 2006
Matrix: Water
Parameters: Semivolatiles
Validation Level: EPA Level III
Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06G039

Sample Identification

OC2-PMW15-0-17
OC2-PMW18A-0-22
OC2-PMW18B-0-23

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination (r^2) were greater than or equal to 0.990.

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Average relative response factors (RRF) for all semivolatile target compounds and system performance check compounds (SPCCs) were greater than or equal to 0.05 as required.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
7/17/06	Hexachlorocyclopentadiene	30.6	All samples in SDG 06G039	J (all detects) UJ (all non-detects)	A

The percent difference (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds.

All of the continuing calibration RRF values were greater than or equal to 0.05 .

V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment

Data flags have been summarized at the end of the report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

Omega Chemical
Semivolatiles - Data Qualification Summary - SDG 06G039

SDG	Sample	Compound	Flag	A or P	Reason
06G039	OC2-PMW15-0-17 OC2-PMW18A-0-22 OC2-PMW18B-0-23	Hexachlorocyclopentadiene	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

Omega Chemical
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 06G039

No Sample Data Qualified in this SDG

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 7/10/06
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	% RSD, r ²
IV.	Continuing calibration	SW	10V ≤ 25%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	client specified
VIII.	Laboratory control samples	A	LCS / D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	N	Not reviewed for Level III validation.
XIII.	Tentatively identified compounds (TICs)	N	Not reviewed for Level III validation.
XIV.	System performance	N	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

Water

1	OC2-PMW15-0-17	11		21		31	
2	OC2-PMW15-5-21	12		22		32	
3	OC2-PMW15-1-20	13		23		33	
4	OC2-PMW18A-0-22	14		24		34	
5	OC2-PMW18B-0-23	15		25		35	
6	OC2-PMW18C-0-24	16		26		36	
7	MB2KIW	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

A. Phenol**	P. Bis(2-chloroethoxy)methane	EE. 2,6-Dinitrotoluene	TT. Pentachlorophenol**	III. Benzo(a)pyrene**
B. Bis (2-chloroethyl) ether	Q. 2,4-Dichlorophenol**	FF. 3-Nitroaniline	UU. Phenanthrene	JJJ. Indeno(1,2,3-cd)pyrene
C. 2-Chlorophenol	R. 1,2,4-Trichlorobenzene	GG. Acenaphthene**	VV. Anthracene	KKK. Dibenz(a,h)anthracene
D. 1,3-Dichlorobenzene	S. Naphthalene	HH. 2,4-Dinitrophenol*	WW. Carbazole	LLL. Benzo(g,h,i)perylene
E. 1,4-Dichlorobenzene**	T. 4-Chloroaniline	II. 4-Nitrophenol*	XX. Di-n-butylphthalate	MMM. Bis(2-Chloroisopropyl)ether
F. 1,2-Dichlorobenzene	U. Hexachlorobutadiene**	JJ. Dibenzofuran	YY. Fluoranthene**	NNN. Aniline
G. 2-Methylphenol	V. 4-Chloro-3-methylphenol**	KK. 2,4-Dinitrotoluene	ZZ. Pyrene	OOO. N-Nitrosodimethylamine
H. 2,2'-Oxybis(1-chloropropane)	W. 2-Methylnaphthalene	LL. Diethylphthalate	AAA. Butylbenzylphthalate	PPP. Benzoic Acid
I. 4-Methylphenol	X. Hexachlorocyclopentadiene*	MM. 4-Chlorophenyl-phenyl ether	BBB. 3,3'-Dichlorobenzidine	QQQ. Benzyl alcohol
J. N-Nitroso-di-n-propylamine*	Y. 2,4,6-Trichlorophenol**	NN. Fluorene	CCC. Benzo(a)anthracene	RRR. Pyridine
K. Hexachloroethane	Z. 2,4,5-Trichlorophenol	OO. 4-Nitroaniline	DDD. Chrysene	SSS. Benzidine
L. Nitrobenzene	AA. 2-Chloronaphthalene	PP. 4,6-Dinitro-2-methylphenol	EEE. Bis(2-ethylhexyl)phthalate	TTT.
M. Isophorone	BB. 2-Nitroaniline	QQ. N-Nitrosodiphenylamine (1)**	FFF. Di-n-octylphthalate**	UUU.
N. 2-Nitrophenol**	CC. Dimethylphthalate	RR. 4-Bromophenyl-phenylether	GGG. Benzo(b)fluoranthene	VVV.
O. 2,4-Dimethylphenol	DD. Acenaphthylene	SS. Hexachlorobenzene	HHH. Benzo(k)fluoranthene	WWW.

LDC #: 1534 A29

SDG #: 06 29

VALIDATION FINDINGS WORKSHEET

Continuing Calibration

Page 1 of 1
 Reviewer NYC
 2nd Reviewer: h

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Was a continuing calibration standard analyzed at least once every 12 hours of sample analysis for each instrument?

Y N N/A Were percent differences (%D) and relative response factors (RRF) within method criteria for all CCC's and SPCC's ?

Y(N)N/A Were all %D and RRFs within the validation criteria of $\leq 25\%$ %D and ≥ 0.05 RRF ?

[illegible]

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: Omega Chemical
Collection Date: July 10, 2006
LDC Report Date: August 24, 2006
Matrix: Water
Parameters: Semivolatiles
Validation Level: EPA Level III
Laboratory: EMAX Laboratories, Inc.
Sample Delivery Group (SDG): 06G039

Sample Identification

OC2-PMW15-0-17
OC2-PMW18A-0-22
OC2-PMW18B-0-23

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals. All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds.

Average relative response factors (RRF) for all target compounds and system monitoring compounds were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% .

The percent difference (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds.

All of the continuing calibration RRF values were within validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MBLK1W	7/12/06	Bis(2-ethylhexyl)phthalate	1.1 ug/L	All samples in SDG 06G039

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
OC2-PMW18A-0-22	Bis(2-ethylhexyl)phthalate	2 ug/L	2U ug/L
OC2-PMW18B-0-23	Bis(2-ethylhexyl)phthalate	2.1 ug/L	2.1U ug/L

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
RGZ072/3LCS/D (All samples in SDG 06G039)	Bis(2-ethylhexyl)phthalate	-	-	31 (≤30)	J (all detects) UJ (all non-detects)	P
	Pentachlorophenol	-	-	34 (≤30)	J (all detects) UJ (all non-detects)	

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment

Data flags have been summarized at the end of the report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

Omega Chemical
Semivolatiles - Data Qualification Summary - SDG 06G039

SDG	Sample	Compound	Flag	A or P	Reason
06G039	OC2-PMW15-0-17 OC2-PMW18A-0-22 OC2-PMW18B-0-23	Bis(2-ethylhexyl)phthalate Pentachlorophenol	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Laboratory control samples (RPD)

Omega Chemical
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 06G039

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
06G039	OC2-PMW18A-0-22	Bis(2-ethylhexyl)phthalate	2U ug/L	A
06G039	OC2-PMW18B-0-23	Bis(2-ethylhexyl)phthalate	2.1U ug/L	A

LDC #: 15355A2b

VALIDATION COMPLETENESS WORKSHEET

SDG #: 06G039

Level III/IV

Laboratory: EMAX Laboratories, Inc.

Date: 8/23/06

Page: 1 of 1

Reviewer: GVL

2nd Reviewer: H

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270C-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 7/10/06
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Continuing calibration	A	1CV \leq 25%
V.	Blanks	SW	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	client specified
VIII.	Laboratory control samples	SW	US/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	N	Not reviewed for Level III validation.
XIII.	Tentatively identified compounds (TICs)	N	Not reviewed for Level III validation.
XIV.	System performance	N	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

water

1	OC2-PMW15-0-17	11		21		31	
2	OC2-PMW15-5-21	12		22		32	
3	OC2-PMW15-1-20	13		23		33	
4	OC2-PMW18A-0-22	14		24		34	
5	OC2-PMW18B-0-23	15		25		35	
6	OC2-PMW18C-0-24	16		26		36	
7	MBLKW	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

(III, EEE, SS, TT only)

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

A. Phenol**	P. Bis(2-chloroethoxy)methane	EE. 2,6-Dinitrotoluene	TT. Pentachlorophenol**	III. Benzo(a)pyrene**
B. Bis (2-chloroethyl) ether	Q. 2,4-Dichlorophenol**	FF. 3-Nitroaniline	UU. Phenanthrene	JJJ. Indeno(1,2,3-cd)pyrene
C. 2-Chlorophenol	R. 1,2,4-Trichlorobenzene	GG. Acenaphthene**	VV. Anthracene	KKK. Dibenz(a,h)anthracene
D. 1,3-Dichlorobenzene	S. Naphthalene	HH. 2,4-Dinitrophenol*	WW. Carbazole	LLL. Benzo(g,h,i)perylene
E. 1,4-Dichlorobenzene**	T. 4-Chloroaniline	II. 4-Nitrophenol*	XX. Di-n-butylphthalate	MMM. Bis(2-Chloroisopropyl)ether
F. 1,2-Dichlorobenzene	U. Hexachlorobutadiene**	JJ. Dibenzofuran	YY. Fluoranthene**	NNN. Aniline
G. 2-Methylphenol	V. 4-Chloro-3-methylphenol**	KK. 2,4-Dinitrotoluene	ZZ. Pyrene	OOO. N-Nitrosodimethylamine
H. 2,2'-Oxybis(1-chloropropane)	W. 2-Methylnaphthalene	LL. Diethylphthalate	AAA. Butylbenzylphthalate	PPP. Benzoic Acid
I. 4-Methylphenol	X. Hexachlorocyclopentadiene*	MM. 4-Chlorophenyl-phenyl ether	BBB. 3,3'-Dichlorobenzidine	QQQ. Benzyl alcohol
J. N-Nitroso-di-n-propylamine*	Y. 2,4,6-Trichlorophenol**	NN. Fluorene	CCC. Benzo(a)anthracene	RRR. Pyridine
K. Hexachloroethane	Z. 2,4,5-Trichlorophenol	OO. 4-Nitroaniline	DDD. Chrysene	SSS. Benzidine
L. Nitrobenzene	AA. 2-Chloronaphthalene	PP. 4,6-Dinitro-2-methylphenol	EEE. Bis(2-ethylhexyl)phthalate	TTT.
M. Isophorone	BB. 2-Nitroaniline	QQ. N-Nitrosodiphenylamine (1)**	FFF. Di-n-octylphthalate**	UUU.
N. 2-Nitrophenol**	CC. Dimethylphthalate	RR. 4-Bromophenyl-phenylether	GGG. Benzo(b)fluoranthene	VVV.
O. 2,4-Dimethylphenol	DD. Acenaphthylene	SS. Hexachlorobenzene	HHH. Benzo(k)fluoranthene	WWW.

LDC #: 15355-026
SDG #: 0609

VALIDATION FINDINGS WORKSHEET
Blank

Page 1 of 1
Review JY6
2nd Reviewer: ✓

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- ☒ N N/A Was a method blank analyzed for each matrix?
☐ N N/A Was a method blank analyzed for each concentration preparation level?
☐ N N/A Was a method blank associated with every sample?
☐ N N/A Was the blank contaminated? If yes, please see qualification below.

Blank extraction date: 7/12/06 Blank analysis date: 7/17/06

Conc. units: ug/l Associated Samples: All

Compound	Blank ID	Sample Identification							
	MSLKIW	2	3	4	5	6			
EEE	1-1	1.2/1.4U	2.6/U	2/U	2.1/U	2.6/U			

Blank extraction date: _____ Blank analysis date: _____
Conc. units: _____ Associated Samples: _____

Compound	Blank ID	Sample Identification							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

SDG #: 06-000009

VALIDATION FINDINGS WORKSHEET

Reviewer: NC
2nd Reviewer: C

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a LCS required?

Y (N) N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

[illegible]

**Omega Chemical
Data Validation Reports
LDC# 15355**

1,4-Dioxane

LDC

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: Omega Chemical
Collection Date: July 10, 2006
LDC Report Date: August 24, 2006
Matrix: Water
Parameters: 1,4-Dioxane
Validation Level: EPA Level III
Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06G039

Sample Identification

OC2-PMW15-0-17
OC2-PMW18A-0-22
OC2-PMW18B-0-23

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals. All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for 1,4-Dioxane.

Average relative response factors (RRF) for 1,4-Dioxane were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% .

All of the continuing calibration RRF values were within validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No 1,4-Dioxane was found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment

Data flags have been summarized at the end of the report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

Omega Chemical

1,4-Dioxane - Data Qualification Summary - SDG 06G039

No Sample Data Qualified in this SDG

Omega Chemical

1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 06G039

No Sample Data Qualified in this SDG

LDC #: 15355A2c **VALIDATION COMPLETENESS WORKSHEET**

SDG #: 06G039

Level III/IV

Laboratory: EMAX Laboratories, Inc.

Date: 8/23/06

Page: 1 of 1

Reviewer: JY

2nd Reviewer: e

METHOD: GC/MS 1,4-Dioxane (EPA SW 846 Method 8270C-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 7/10/06
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Continuing calibration	A	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	client specified
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	N	Not reviewed for Level III validation.
XIII.	Tentatively identified compounds (TICs)	N	Not reviewed for Level III validation.
XIV.	System performance	N	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

Water						
1	OC2-PMW15-0-17	11		21		31
2	OC2-PMW15-5-21	12		22		32
3	OC2-PMW15-1-20	13		23		33
4	OC2-PMW18A-0-22	14		24		34
5	OC2-PMW18B-0-23	15		25		35
6	OC2-PMW18C-0-24	16		26		36
7	MBLKIW	17		27		37
8		18		28		38
9		19		29		39
10		20		30		40

**Omega Chemical
Data Validation Reports
LDC# 15355**

N-Nitrosodimethylamine

LDC

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: Omega Chemical
Collection Date: July 10, 2006
LDC Report Date: August 25, 2006
Matrix: Water
Parameters: N-Nitrosodimethylamine
Validation Level: EPA Level III
Laboratory: EMAX Laboratories, Inc./Maxxam Analytics, Inc.
Sample Delivery Group (SDG): 06G039/A670791

Sample Identification

OC2-PMW15-0-17
OC2-PMW18A-0-22
OC2-PMW18B-0-23

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 1625 for N-Nitrosodimethylamine.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. HRGC/HRMS Instrument Performance Check

Mass resolution was checked at the required frequencies.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 25.0% for N-Nitrosodimethylamine.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% .

The percent difference (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No N-Nitrosodimethylamine was found in the method blanks.

VI. Surrogate Spikes

Surrogates were not required by the method.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment

Data flags have been summarized at the end of the report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment

Data flags have been summarized at the end of the report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

Omega Chemical

N-Nitrosodimethylamine - Data Qualification Summary - SDG 06G039/A670791

No Sample Data Qualified in this SDG

Omega Chemical

N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 06G039/A670791

No Sample Data Qualified in this SDG

METHOD: GC/MS N-Nitrosodimethylamine (EPA Method 1625)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 7/10/06
II.	GC/MS Instrument performance check	NA	
III.	Initial calibration	A	%RSD ≤ 25 no Ref
IV.	Continuing calibration /ICV	A	%D ≤ 25 b
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates /dup	N/A	didn't specify
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	A	Not reviewed for Level III validation.
XIII.	Tentatively identified compounds (TICs)	N	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

1	OC2-PMW15-0-17	11	MB	21		31	
2	OC2-PMW15-5-21	12		22		32	
3	OC2-PMW15-1-20	13		23		33	
4	OC2-PMW18A-0-22	14		24		34	
5	OC2-PMW18B-0-23	15		25		35	
6	OC2-PMW18C-0-24	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

**Omega Chemical
Data Validation Reports
LDC# 15355**

Dissolved Metals

LDC

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: Omega Chemical
Collection Date: July 10, 2006
LDC Report Date: August 25, 2006
Matrix: Water
Parameters: Dissolved Metals
Validation Level: EPA Level III
Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06G039

Sample Identification

OC2-PMW15-0-17
OC2-PMW18A-0-22
OC2-PMW18B-0-23
OC2-PMW15-0-17MS
OC2-PMW15-0-17MSD

Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6020A and 7000 for Dissolved Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Antimony	0.353 ug/L	All samples in SDG 06G039

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
OC2-PMW18A-0-22	Antimony	0.406 ug/L	0.406U ug/L

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Internal Standards (ICP-MS)

Raw data were not reviewed for this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

Raw data were not reviewed for this SDG.

XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

XIV. Field Blanks

No field blanks were identified in this SDG.

Omega Chemical
Dissolved Metals - Data Qualification Summary - SDG 06G039

No Sample Data Qualified in this SDG

Omega Chemical
Dissolved Metals - Laboratory Blank Data Qualification Summary - SDG 06G039

SDG	Sample	Analyte	Modified Final Concentration	A or P
06G039	OC2-PMW18A-0-22	Antimony	0.406U ug/L	A

LDC #: 15355A4

VALIDATION COMPLETENESS WORKSHEET

Date: 8-23-06

SDG #: 06G039

Level III

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

mky

Reviewer: MG

2nd Reviewer: mky

METHOD: Dissolved Metals (EPA SW 846 Method 6020A/7000)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 7-10-06
II.	Calibration	A	
III.	Blanks	SW	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	A	MS/MSD
VI.	Duplicate Sample Analysis	N	
VII.	Laboratory Control Samples (LCS)	A	LCS/LCSD
VIII.	Internal Standard (ICP-MS)	N	Not reviewed for level III
IX.	Furnace Atomic Absorption QC	N	Not utilized
X.	ICP Serial Dilution	A	
XI.	Sample Result Verification	N	Not reviewed for Level III validation.
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	N	
XIV.	Field Blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

all water

1	OC2-PMW15-0-17 /	11	PBW	21		31	
2	OC2-PMW15-5-21	12		22		32	
3	OC2-PMW15-1-20	13		23		33	
4	OC2-PMW18A-0-22 /	14		24		34	
5	OC2-PMW18B-0-23 /	15		25		35	
6	OC2-PMW18C-0-24	16		26		36	
7	OC2-PMW15-0-17MS	17		27		37	
8	OC2-PMW15-0-17MSD	18		28		38	
9	OC2-PMW18C-0-24MS	19		29		39	
10	OC2-PMW18C-0-24MSD	20		30		40	

Notes: _____

SDG #: 06G039

Sample Specific Element Reference

2nd reviewer: Wey

All circled elements are applicable to each sample.

[illegible]

Comments: Mercury by CVAA if performed

LDC #: 15355A4

SDG #: 039

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

Sample Concentration units, unless otherwise noted: $\mu\text{g/L}$

VALIDATION FINDINGS WORKSHEET

PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Associated Samples: a11

Page: 1 of 1

Reviewer: MG

2nd Reviewer: MY

					Sample Identification									
Analyte	Maximum PB* (mg/Kg)	Maximum PB* ($\mu\text{g/L}$)	Maximum ICB/CCB* ($\mu\text{g/L}$)	Blank Action Limit	4									
Al														
Sb			0.353	1.76	0.406									
As														
Ba														
Be														
Cd														
Ca														
Cr														
Co														
Cu														
Fe														
Pb														
Mg														
Mn														
Hg														
Mo														
Ni														
K														
Se														
Ag														
Na														
Tl														
V														
Zn														
Sn														
B														

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note: a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

**Omega Chemical
Data Validation Reports
LDC# 15355**

Wet Chemistry

100

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: Omega Chemical
Collection Date: July 10, 2006
LDC Report Date: August 24, 2006
Matrix: Water
Parameters: Wet Chemistry
Validation Level: EPA Level III
Laboratory: EMAX Laboratories, Inc.
Sample Delivery Group (SDG): 06G039

Sample Identification

OC2-PMW15-0-17
OC2-PMW18A-0-22
OC2-PMW18B-0-23
OC2-PMW15-0-17MS
OC2-PMW15-0-17DUP

Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 160.1 for Total Dissolved Solids, EPA Method 218.6 for Hexavalent Chromium, EPA Method 300.0 for Bromide, Chloride, Fluoride, Nitrate as Nitrogen, Nitrite as Nitrogen, Orthophosphate as Phosphorus, and Sulfate, EPA Method 314.0 for Perchlorate, EPA Method 335.2 for Cyanide, EPA Method 351.3 for Total Kjeldahl Nitrogen, EPA Method 370.1 for Dissolved Silica, and EPA Method 415.1 for Total Organic Carbon.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable with the following exceptions:

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
7/20/06	ICV	Total kjeldahl nitrogen	116 (90-110)	All samples in SDG 06G039	J (all detects)	P

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks.

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VII. Sample Result Verification

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Field Blanks

No field blanks were identified in this SDG.

Omega Chemical
Wet Chemistry - Data Qualification Summary - SDG 06G039

SDG	Sample	Analyte	Flag	A or P	Reason
06G039	OC2-PMW15-0-17 OC2-PMW18A-0-22 OC2-PMW18B-0-23	Total kjeldahl nitrogen	J (all detects)	P	Calibration (%R)

Omega Chemical
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 06G039

No Sample Data Qualified in this SDG

LDC #: 15355A6

VALIDATION COMPLETENESS WORKSHEET

Date: 8-23-06

SDG #: 06G039

Level III^{IV}

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

gmk

Reviewer: MG

2nd Reviewer: LM

Fluoride

METHOD: (Analyte) Bromide, Chloride, Nitrate-N, Nitrite-N, Orthophosphate-P, Sulfate (EPA Method 300.0), Cyanide (EPA Method 335.2), Hexavalent Chromium (EPA Method 218.6), Perchlorate (EPA Method 314.0), Dissolved Silica (EPA Method 370.1), TDS (EPA Method 160.1), TKN (EPA Method 351.3), TOC (EPA Method 415.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 7-10-06
IIa.	Initial calibration	A	
IIb.	Calibration verification	SW	
III.	Blanks	A	
IV	Matrix Spike/Matrix Spike Duplicates	ASW	MS
V	Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS / LCSD
VII.	Sample result verification	N	Not reviewed for Level III validation.
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

all water

1	OC2-PMW15-0-17	11	OC2-PMW18C-0-24MS	21		31	
2	OC2-PMW15-5-21	12	OC2-PMW18C-0-24DUP	22		32	
3	OC2-PMW15-1-20	13	PBW1	23		33	
4	OC2-PMW18A-0-22**	14	PBW2	24		34	
5	OC2-PMW18B-0-23	15		25		35	
6	OC2-PMW18C-0-24	16		26		36	
7	OC2-PMW15-0-17MS	17		27		37	
8	OC2-PMW15-0-17DUP	18		28		38	
9	OC2-PMW15-1-20MS	19		29		39	
10	OC2-PMW15-1-20DUP	20		30		40	

Notes: _____

Comments:

LDC #: 15355A6
SDG #: 06G039

VALIDATION FINDINGS WORKSHEET

Page: 1 of 1
Reviewer: MG
2nd Reviewer: lmy

METHOD: Inorganics, EPA Method See cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y	N	N/A	Were all instruments calibrated daily, each set-up time, and were the proper number of standards used?
Y	N	N/A	Were all initial and continuing calibration verification percent recoveries (%R) within the control limits of 90-110%?
Y	N	N/A	Are all correlation coefficients ≥ 0.995 ?

LEVEL IV/D ONLY:

<u>Y</u>	<u>N</u>	<u>N/A</u>	Were recalculated results acceptable? See Level IV Initial and Continuing Calibration Recalculation Worksheet for recalculations.
<u>Y</u>	<u>N</u>	<u>N/A</u>	Was a balance check conducted prior to the TDS analysis?
<u>Y</u>	<u>N</u>	<u>N/A</u>	Was the titrant normality checked?

[illegible]

Comments: _____